



UNION OF SOUTH AFRICA

ANNUAL REPORT

OF THE

Department of Public Health

Year ended 30th June, 1947

Published by Authority

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TABLE OF CONTENTS.

	PAGE		PAGE
I. INTRODUCTION.....	5	(2) Hospital Services—	
II. VITAL STATISTICS.....	7	(a) Public Hospitals—	
III. PROMOTIVE HEALTH SERVICES—		Provincial Hospitals.....	63
Increase in National Income and Changes in its		Mental Hospitals.....	63
Distribution.....	9	Tuberculosis Hospitals.....	64
General Education.....	9	Infectious Diseases' Hospitals.....	64
Nutrition and Health Education.....	10	Venereal Disease Hospitals.....	65
Physical Exercise and Recreation.....	13	Hospitals for Formidable Epidemic	
Industrial Hygiene and Welfare.....	13	Diseases.....	65
IV. NON-PERSONAL HEALTH SERVICES—		Leprosy Institutions.....	65
Housing.....	14	(b) Hospitals belonging to Private Organisations	
Slum Elimination.....	16	or Individuals—	
Rural and Peri-urban Health Conditions.....	16	Mission Hospitals.....	65
V. PERSONAL PREVENTIVE HEALTH SERVICES—		Mine Hospitals.....	65
(1) Health Centres.....	18	Private Nursing and Maternity Homes..	66
(2) Maternity, Child Welfare and Nursing Services...	23	VII. GENERAL—	
(3) Dental Caries Research.....	25	National Health Council.....	67
(4) Control of Infectious Diseases—		Central Health Services and Hospitals Co-ordinating	
(a) Diseases from outside the Union—		Council.....	68
World Health Organisation.....	28	S.A. Medical and Dental Council.....	68
Port Health Administration.....	28	S.A. Pharmacy Board.....	70
Airport Health Measures.....	29	S.A. Nursing Council.....	70
Yellow Fever.....	29	Medical Research.....	72
(b) Diseases inside the Union—		Administration of Medical, Dental and Pharmacy Act	73
Infectious Diseases Notifications.....	30	Administration of Food, Drugs and Disinfectants Act	73
Diseases to which special conditions apply—		Royal Tour.....	74
Tuberculosis.....	30	Staff Chart.....	75
Venereal Disease.....	34	Establishment of Regional Offices.....	76
Leprosy.....	40	Publications by Members of the Staff.....	76
Malaria.....	42	Acknowledgements.....	77
Bilharzia.....	46		
Formidable Epidemic Diseases—		ANNEXURES.	
Plague.....	46	A. Resolutions of Meeting of National Health Council, 1947.	
Smallpox.....	47	B. "The World Health Organization" by Dr. H. S. Gear.	
Typhus.....	47	(Reprinted from the S.A. Medical Journal.)	
Other Infectious Diseases—			
Acute Poliomyelitis.....	48	TABLES.	
Amoebiasis.....	52	1. Summary of Vital Statistics of European Population,	
Diphtheria.....	53	1920-1945.....	8
Relapsing Fever.....	53	2. Estimated Population, 1945, by Race.....	9
Typhoid Fever.....	54	3. Comparison of Birth, Death and Natural Increase Rates	
(5) Laboratories—		among Europeans in the Union with other Countries	9
Departmental Laboratories.....	57	4. Infantile Mortality Rates: Europeans in the Union,	
South African Institute for Medical Research	60	compared with other Countries.....	9
VI. CURATIVE HEALTH SERVICES—		5. Local Authorities under the Public Health Act (1919)	14
(1) Patients outside hospitals or not admitted to		6. Housing Act No. 35 of 1920 working from Promulgation,	
hospitals—		1920, to 30th June, 1947.....	15
(a) Pauper Medical Relief—		7. Dwellings under Construction and Dwellings completed	
District Surgeons.....	61	at 30th June, 1947.....	16
Health Centres.....	61	8. Health Centres: Disposal of Staff.....	23
Outpatient Departments of Public Hos-		9. Analysis of Attendances for Periodic Health Examination	23
pitals.....	61	10. Knysna Magisterial District: Vital Statistics.....	23
Services provided by Local Authorities..	61	11. Nursing and Maternity Homes Inspected.....	24
Dental Services.....	62	12. District Nursing Service: Nurses, Midwives and Non-	
(b) Non-Pauper Medical and Dental Services—		European Nursing Assistants.....	24
Private Medical and Dental Practitioners		13. European Infants: Births and Deaths under one year	
and Private Nurses.....	62	registered and Infantile Mortality Rate.....	25
Medical attention provided as one of the		14. Infantile Mortality: Asiatics and Mixed, 1945.....	25
conditions of employment.....	62	15. Maternal Mortality: Europeans.....	25
Medical Benefit Societies.....	62	16. Maternal Mortality: Asiatic and Mixed—Union.....	25
Friendly Societies and Medical Aid		17. European Deaths from Puerperal Causes by Age Groups	26
Societies.....	63	18. Ports of the Union: Health Measures.....	29
		19. Notifications of Diseases and Number of Deaths.....	31-32
		20. Tuberculosis: Number of Cases and Deaths in Age	
		Groups.....	35-36
		21. Tuberculosis: Hospital Admissions, Discharges and	
		Deaths.....	34

	PAGE		PAGE
22. Tuberculosis: Condition of Patients on Admission to Hospital.....	34	44. Diphtheria: Distribution of Cases and Deaths.....	54
23. King George V Hospital, Durban: Admissions, Discharges and Deaths.....	34	45. Typhoid or Enteric Fever: Distribution of Cases and Deaths: by Race and Area.....	55
24. Nelspoort Sanatorium: Admissions, Discharges and Deaths.....	34	46. Typhoid or Enteric Fever: Notifications and Incidence in Urban Local Authority Areas in which ten or more cases were notified during the year ended 30th June, 1947.....	56
25. Rietfontein Tuberculosis Hospital: Admissions, Discharges and Deaths.....	34	47. Pathological Laboratories: Analyses of Examinations..	57
26. Tuberculosis: Distribution of Cases and Deaths by Race	37	48. Pathological Laboratories: Number of Examinations performed, 1946-47.....	59
27. Venereal Diseases: Outdoor Attendances at Clinics and Treatment Centres.....	40	49. Pathological Laboratories: Nature of Examinations Performed.....	59
28. Venereal Diseases: Cases treated in Hospital.....	40	50. Government Vaccine Institute: Work carried out.....	60
29. Venereal Diseases: Cases treated and Attendances...	41	51. Calf Lymph: Free Issues.....	60
30. Leper Institutions: Patients therein on 30th June, 1947	43	52. Therapeutic Substances Regulations: Licences Issued..	60
31. Leprosy: First Admissions Recrudescence Cases, Discharges and Deaths.....	43	53. Therapeutic Substances Regulations: Examinations carried out.....	60
32. Leprosy: Cases remaining in their own Homes.....	43	54. District Surgeoncies.....	60
33. Malaria: Vectors per 1,000 huts in Controlled and Uncontrolled Areas.....	45	55. Nursing Homes Registered with the Department.....	66
34. Effect of Gammexane at various strengths and at Varying Periods on Mosquitoes.....	45	56. Personnel of Nursing Homes.....	66
35. Distribution of Human Plague among the Districts of the Two Affected Provinces.....	47	57. Bed Accommodation available in Nursing Homes.....	67
36. Number of Cases of Typhus in the Union from 1933 to 1947.....	47	58. Number of Approved Institutions for Training Nurses	72
37. Typhus: Monthly Incidence.....	48	59. Medical, Dental and Pharmacy Act, No. 13 of 1928: Prosecutions and Convictions under Laws relating to Habit-forming Drugs.....	73
38. Typhus: Yearly Incidence.....	49	60. Food, Drugs and Disinfectants Act, No. 13 of 1929: Samples taken for Examination or Analysis.....	73
39. Poliomyelitis: Number of Cases and their Distribution since 1934.....	49	61. Staff Chart of the Union Health Department.....	75
40. Acute Poliomyelitis: Distribution of Cases and Deaths	50		
41. Acute Poliomyelitis: Notifications and Deaths.....	51		
42. Acute Poliomyelitis: Distribution of Cases and Deaths	52		
43. Incidence of Deaths from Diphtheria—Europeans.....	53		

GRAPHS.

1. Tuberculin Tests, 1943-1947.....	38
2. South African Death Rates from Tuberculosis per 100,000 for different Racial Groups.....	39

INTRODUCTION.

THE HONOURABLE THE MINISTER OF HEALTH.

SIR,

I have the honour to submit, for your information, the following report on the work of the Department of Health for the year ending 30th June, 1947.

I.—INTRODUCTORY.

This report covers the first full year since the passing of the Public Health Amendment Act No. 51 of 1946. The Act changed the name of the Department of Public Health, created by the principal Act of 1919, into the Department of Health. As was explained by the Minister of Health when introducing the amending legislation, this instantaneous change of title is significant of a change in concepts with regard to the promotion and maintenance of national health which has been taking place over many years.

The functions of the Department of Public Health as originally laid down by the legislature were as follows:—

The functions of the department of Public Health shall, subject to the provisions of this Act, be to prevent or guard against the introduction of infectious disease into the Union from outside; to promote the public health and the prevention, limitation or suppression of infectious, communicable or preventable diseases within the Union; to advise and assist provincial administrations and local authorities in regard to matters effecting the public health; to promote or carry out researches and investigations in connection with the prevention or treatment of human diseases; to prepare and publish reports and statistical or other information relative to the public health, and generally to carry out in accordance with directions the powers and duties in relation to the public health conferred or imposed on the Governor-General or the Minister by this Act or otherwise.

It shall be the duty of the department to obtain and publish periodically such information regarding infectious disease and other health matters in the Union, and such procurable information regarding epidemic disease in territories adjacent to the Union or in other countries, as the interests of the public health may require.

It is clear that in 1919 the principal, though by no means the sole, emphasis was on the suppression and control of infectious and communicable diseases. This becomes even clearer when we look at the chapter headings of the Public Health Act. The first deals with "administration" and the last with "general and supplementary". The central eight chapters deal either with communicable diseases specifically or with environmental sanitation (including housing) the purpose of which is to eradicate the conditions under which infection generally is spread.

This concept of "public health" functions as concerned mainly if not exclusively with the prevention and control of infectious diseases naturally flowed from the pioneering work of the great sanitarians of the nineteenth century. Their first task was to diminish the terrible toll of human life taken by epidemics of cholera, smallpox, plague, typhus, typhoid, and the like. Great triumphs were achieved by them through environmental sanitation and the institution of "fever" or isolation hospitals which in their genesis were really part of the sanitary system. These successes have now become a commonplace of efficient public health administration the world over.

The Union can claim that, notwithstanding the presence of a large illiterate and economically depressed Non-European population, the public health system established

a quarter of a century ago has been successful in its main purpose of preventing and suppressing outbreaks of infectious disease. And yet, as in other countries, it has been found that despite effective control of infectious diseases there still remains a vast amount of other kinds of sickness. The very effectiveness of our measures against communicable disease has revealed how much illhealth there is which is due neither to insanitation nor to spread of infection, but to malnutrition and to psychological maladjustment. Illhealth due to such causes is preventable, but not by the older techniques of public health practice, nor by purely curative medical services as they have developed to date.

Considerations such as the foregoing clearly influenced the National Health Services Commission in making its recommendations,* and in due course influenced the legislature when it passed the Public Health Amendment Act of 1946 by which the title of the Department was changed. The change is one of profound and far-reaching significance. It implies that no longer is the Department limited in its functions to the traditional field of "public health"—the control of sanitation and of infectious diseases—but now has explicit authority for the enlargement of its boundaries to include, what perhaps was implicit in the phrase "to promote the public health", the whole range of personal health services. This change recognises that the promotion of human health and the prevention of illhealth is intimately related to the control not only of the physical environment of man but also of his social and economic environment, and that it depends not only upon the prompt detection of infectious individuals but also upon the early diagnosis and treatment of incipient disease in all members of the community.

The National Health Services Commission did more than recognise the need for extending the basis of preventive medicine. It suggested what the extended basis should be, by recommending that Health Centres should be the foundation of the National Health Service which it envisaged. This recommendation has also been implemented, by administrative action from 1944 onwards. Health Centres as they are now being developed by the Department have as their primary purpose the practice of preventive medicine in its widest sense. This enlarged concept includes not only the prevention of infectious diseases in the community by the techniques of isolation and in the individual by the techniques of immunisation: it includes also the prevention of threatened illhealth or of latent disease in the individual by the techniques of social medicine. These techniques provide for an assessment, on the basis of home visits by trained health auxiliaries, of the total social and physical environment of the individual and the family; and the findings are then correlated with the findings made at periodic personal health examinations. The resultant socio-biological diagnosis is used as the basis for both preventive and remedial measures. It is recognised that early curative measures are also preventive: there is no hard and fast line between preventive and curative personal health services. It is to this integrated practice of preventive and curative medicine, using the family rather than the individual as the unit, that the term social medicine has often been applied. Success in the practice of social medicine depends upon the response of the individual members of the family unit to the continuous process of health education, based upon those correlated findings, which is carried out by the Health Centre doctor and his auxiliaries. It depends also upon the extent to which the Health Centre staff can, through appropriate representations, bring about improvements in environment and social conditions which cannot be rectified by the efforts of the

* Report of the National Health Services Commission, U.G. No. 30—1944.

family itself. The very wide range of social and economic conditions among the several different races of the Union produces an almost infinite variety of problems in the practice of social medicine in this country; and it is for this reason that the Department has recognised from the outset the basic need for an institution devoting special attention to the study of these problems. Such an institution will be provided in the Institute of Hygiene and Social Medicine at Durban.

Early attention has been drawn to the change of title of the Department and to the establishment of Health Centres because they are indicative of the new orientation of the Department towards its supreme task of promoting and safeguarding the health of the people. It is in accordance with this new orientation that the arrangement of material in this report differs from that of its predecessors. The arrangement conforms to the classification of health services adopted by the National Health Services Commission. Their classification was based upon the modern conception of "Health" and of the services necessary to ensure its realisation by all sections of the people of South Africa. The primary divisions in this classification were four in number: Promotive, Preventive, Curative and Rehabilitative.

Promotive health services were placed in the forefront of this modern classification. This was a striking departure from the concept which in the past has placed hospitals and clinics in the forefront. The services provided at hospitals and clinics, necessary as they are, merely alleviate illhealth. By themselves, they can never produce a healthy people. The history of so-called health services in this country, as in other countries, is largely a record of the never ceasing but never successful endeavour to build and staff sufficient hospitals and clinics to catch up on an ever-increasing volume of illhealth. The prevention of illhealth and the promotion of health require organised, purposeful activities many of which lie outside the scope of the executive responsibility of the public health and medical services as ordinarily understood.

The health promotive services are those which produce improvements in the economic and social condition of the people. Whilst a Department of Health has executive responsibility only in very limited degree, it has the very important function of advising throughout their range upon the desiderata to be achieved by this group of services—in other words, upon the optimum economic and social conditions for the achievement and maintenance of human health.

It is for this reason that this report, after its presentation of the vital statistics which are the most reliable index of the general state of the nation's health, proceeds first to an account of promotive health services seen from the viewpoint of the Department. It is scarcely necessary to emphasise how inadequate health promotive services are in respect of large groups in the population, nor to emphasise that unless and until they become adequate any attempt to maintain a healthy population by the provision of merely curative services is foredoomed to failure.

Promotive health services at many points merge with the *preventive health services*. These may be subdivided into the non-personal and personal. *Non-personal health services* are synonymous with environmental sanitation, including housing. Sporadic outbreaks of typhus and plague, and the high incidence of enteric, worm infestations and other bowel diseases are indications of the inadequacy of non-personal health services in many areas of the Union. The difficulties in the way are very great, particularly in relation to the provision of water supplies in a country which on the whole is not well watered, and in relation to the provision of housing in a country which is undergoing urbanisation at a very rapid rate.

Personal preventive health services may be viewed from two angles, that of the community and that of the individual. From the viewpoint of the community they comprise principally measures for the early detection and

prompt isolation of persons suffering from diseases directly or indirectly communicable to their fellows. The notification of infectious diseases together with the provision of isolation hospitals constitute a mechanism for the prevention of spread of such diseases, and one of the most important functions of the Department, in collaboration with local authorities throughout the Union, is to ensure that this mechanism operates effectively. From the viewpoint of the individual, personal preventive health services comprise not only active immunisation against various infectious diseases but also measures for the detection and treatment of the early stages of incipient and chronic degenerative changes within the body which impair efficiency and ultimately may lead to complete physical breakdown. As has been indicated earlier, health centres are designed to provide the basic mechanism for these services. Although still largely in their pioneer stages, the health centres established by the Department are already demonstrating their effectiveness. The mass radiographic services about to be instituted by the Division of Tuberculosis will also be a preventive measure of the utmost value to both the community and the individual.

Curative health services still comprise by far the greater part of personal health services as a whole, if one has regard to the number of persons engaged upon them and the amount of money spent on them. Executive functions in this field are divided between the provincial administrations, which are responsible for institutional or hospital services (save isolation and mental hospitals), and the Union Government which is responsible for extra-institutional curative services and for certain hospitals. Despite their magnitude, curative services are still very inadequate particularly among non-Europeans. For example, it has been authoritatively estimated that in Durban there is already one bed for every 73 of the Native population, and yet the hospitals are continuously over-crowded. The bed-ratio usually accepted as adequate is 1 for every 200 population. Even allowing for the fact that Durban hospitals serve a considerable hinterland as well as the urban population proper, the significance of the foregoing figure is that there is a far greater volume of illhealth among the Native population than is normal among peoples living at the ordinary levels of civilisation. This inference is fully supported by findings in surveys undertaken in and about Durban by the Tuberculosis Division and by the Health Centre Training Scheme of the Department.

Rehabilitative health services do not fall under the administrative control of this Department but under that of the Department of Social Welfare. However, just as preventive health services merge with the curative, so curative services merge into rehabilitative. The process of rehabilitation commences, or should commence as soon as it becomes clear that injury or disease will necessitate a change of occupation. The first step is the provision of occupational therapy simultaneously with the provision of purely medical services; and steps are being taken to ensure that this provision will be made, particularly in the tuberculosis hospitals under the control of the Department.

In addition to the acceptance of a new classification of health services and the establishment of health centres, the work of the National Health Services Commission has influenced the development of the Department in the sphere of administrative organisation. The Commission recommended the creation of several divisions centrally, and of regional administrations peripherally. During 1947 two new divisions were established in addition to the long-standing divisions of Infectious Diseases Control (which includes Maternal and Child Welfare), Mental Hygiene, Housing and General, and the Division of Tuberculosis Control established in 1946. The two new divisions were the Division of Nutrition and Health Education and the Division of Social Medicine, the latter being in charge of health centres. With regard to regionalisation, new offices were opened in East London, to serve the Border area and the Transkei, and another at Bloemfontein to serve the Free State and part of Northern Cape Province.

II.—VITAL STATISTICS.

EUROPEANS.

During the year 1946 the third decennial complete census for all races in the Union was taken. This has caused a great pressure of work on the Office of Census and Statistics and as a result that office has not been able to supply the Vital Statistics for 1946. The latest figures available are for the year 1945 and it is to these that the following comments refer.

The Vital Statistics contain several interesting features. Most notable is the fact that both the infantile mortality rate and the maternal mortality rate are significantly lower than any previously recorded for the Union. The crude death rate and the tuberculosis death rate are also slightly lower than the respective rates for any previous year. On the other hand both the death rate for cancer and that for diseases of the heart and circulatory system are the highest ever recorded.

The infantile mortality rate has been dropping steadily over the last quarter of a century. In 1920, the first year for which this Department issued an annual report, the figure was 90; five years ago it had reached the comparatively satisfactory figure of 50; in 1944, it had fallen to the then lowest recorded figure of 42·53 and this figure has now been surpassed by the infantile mortality rate for 1945 of 40·33, a figure significantly lower than the previous record and one which compares favourably with infantile mortality rates in advanced countries throughout the world. It is a well recognised fact that the infantile mortality rate of any community is a very reliable index of health conditions within that community. This is because so many, in fact the majority, of the causes of infantile mortality, are preventable by health measures, such as the prevention of contamination of food supplies, good hygienic conditions generally and careful mothercraft. It is therefore most satisfactory to be able to record this steady and significant drop in the European infantile mortality rate over a number of years. It must be realised, however, that there is no reason for complacency and that continued effort is required to maintain and still further to improve the position.

Throughout the period 1920, when the Department first started to publish vital statistics, until 1936, the European maternal mortality rate remained consistently about 5 per 1,000. From 1937 onwards there has been a marked and fairly consistent fall until in 1944 the lowest recorded figure of 2·20 was reached. This figure was however, surpassed during the year under review when a further fall was recorded and the maternal mortality rate reached the very satisfactory figure of 2·10. Improvement in the maternal mortality rate depends on good ante-natal, maternity and post-natal services. A more detailed analysis of the position shows that the greatest improvement has been in regard to deaths from puerperal sepsis. While there is no doubt that a very important factor in the reduction of the number of deaths from this cause has been the introduction and use of better therapeutic measures, and especially the use of the sulpha group of drugs, during the past decade, it is clear that this is not the only reason for the steady improvement in the maternal mortality rate during these years. This is evident from two facts, viz. that the improvement started before the sulpha drugs came into common use and, secondly, that there has also been significant improvement in regard to the deaths from maternal causes other than puerperal sepsis. The latter fact must be attributed to improvement in the quality and extent of the ante-natal, maternity and post-natal services. Apart from improvements which have taken place in regard to such services in the larger towns, it is noteworthy that district nursing services, which are subsidised by this Department, have developed very rapidly during the last ten years, in spite of the war and in spite of the great shortage of nurses. Whereas in 1935 there were 47 district

nurses subsidised by this Department, in 1945 there were 565 district nurses so subsidised. It is not unreasonable to suggest that some of the credit for the improved maternal mortality rate is attributable to the expansion of these services. Another important factor in the reduction of the maternal mortality rate is undoubtedly the improved nutritional condition of the people. Satisfactory nutrition during childhood ensures good skeletal development and a roomy and well proportioned pelvis which is essential for safe child-bearing. Good nutrition during pregnancy is of course also important.

The European death rate from tuberculosis is the lowest ever recorded. The present figure of 32·46 compares very favourably with that of twenty years ago. At that time the death rate from tuberculosis was consistently about 50 per 100,000 per annum. It is universally recognised that the incidence of and the death rate from this disease are markedly affected by the socio-economic conditions of the community concerned, and particularly by the nutritional state of the people. The steady fall in the tuberculosis death rate over the last twenty years is undoubtedly, to a very large extent, a reflection of the improvement in living and working conditions which has been brought about over this period.

The death rate from cancer continues to rise year after year and during the period under review it has reached the highest figure ever recorded. Cancer is, of course, primarily a disease of middle and later life and an increase in the average age of the population would naturally result in a greater number of people reaching the cancer age. During the last quarter of a century there has been an appreciable increase in the average age of the population of the Union, due in some degree to longer expectation of life resulting from better living conditions but also probably to other factors. To what extent the increasing death rate from cancer is an indication of the increasing average age of the population and to what extent it is a measure of a real increase in the prevalence of the disease it is not possible to assess without a detailed study of the incidence of the disease in the various age groups. In any event, the fact remains that cancer is one of the most important lethal diseases of our time.

The death rate due to "diseases of the heart and circulatory system" continues to show a consistent and rapid increase. In the year under review the rate was 236·10, a figure very considerably higher than any previously recorded. This category forms far the largest single cause of death among Europeans in South Africa. It must be pointed out, however, that the group of fatal conditions classified under this heading embraces a wide field and covers far more than a single disease process. The diseases which fall within this category are very largely those of middle and later life. They are moreover not preventable to anything like the same degree as are the diseases of childhood and early life, many of which are eminently preventable. In previous reports attention has been drawn to the fact that in any community in which preventable diseases are being controlled in an increasing degree by health measures and better living conditions generally, a corresponding increase in the death rate from diseases of middle and later life is bound to occur. This phenomenon is clearly demonstrated by the fact that the death rate due to diseases of the heart and circulatory system continues to rise steadily and rapidly while, as previously indicated, the death rates from preventable conditions, such as diseases of infants, maternal deaths and deaths from tuberculosis, are falling.

The actual or crude death rate is slightly lower than any previously recorded. In the absence, however, of information regarding the standardised death rate it is not possible to express any opinion as to whether this fall is significant or not. Unfortunately, owing as previously mentioned to pressure of work on the Department of Census and Statistics, standardised death rates have not been available over the last few years.

TABLE 1.—UNION OF SOUTH AFRICA: SUMMARY OF VITAL STATISTICS OF EUROPEAN POPULATION, 1920-1945.

Calendar Year.	European Population (estimated).	Death Rate per 1,000 of Population.		Diseases of Heart and Circulatory System.	Pneumonia and Bronchitis.	Cancer.	Death Rate per 100,000 of Population from Tuberculosis (all forms).§										Percentage of Total Deaths, the Cause of which was Medically Certified.	Infantile Mortality Rate (Deaths of Infants under One Year per 1,000 Live Births Registered).	Maternal Mortality Rate (Deaths of Mothers in connection with Pregnancy or Childbirth Per 1,000 Live Births Registered).	Survival Rate or Rate of Natural Increase of Births over Deaths per 1,000 of Population).
		1,000 of Population.					Cape Province.		Transvaal.		Orange Free State.		Natal.		Total.					
		Actual or Crude.	Standardized.*				Cape Province.		Transvaal.		Orange Free State.		Natal.							
							Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.						
1920.....	1,499,911	28.97	11.09	12.15	95.67†	113.87†	58.87†	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	79.78	90.07	4.10†	17.88
1921.....	1,519,488†	28.44	10.41	11.43	102.91	136.15	69.09	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	80.76	77.09	4.94	18.03
1922.....	1,556,241	27.52	9.48	10.41	97.99	127.24	70.88	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	82.96	72.91	5.21	18.04
1923.....	1,579,733	26.70	9.77	10.65	108.50	120.72	78.94	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	82.77	74.42	5.22	16.67
1924.....	1,610,774	26.29	9.62	10.44	123.92	123.79	76.36	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	84.74	73.73	4.75	16.93
1925.....	1,637,472	26.51	9.39	10.15	128.86	97.04	72.86	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	86.45	68.39	5.62	17.12
1926.....	1,676,660†	26.16	9.59	10.28	127.21	113.44	71.18	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	87.76	64.82	4.56	16.57
1927.....	1,708,955	25.95	9.73	10.34	122.76	110.42	73.20	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	89.93	70.62	4.80	16.22
1928.....	1,738,937	25.77	10.15	10.69	133.53	127.52	77.72	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	90.19	70.49	4.98	15.62
1929.....	1,767,719	26.15	9.51	9.98	127.11	104.04	77.44	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	91.15	66.84	5.26	16.64
1930.....	1,797,900	26.44	9.69	10.08	132.33	112.87	82.62	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	90.46	63.07	4.70	16.75
1931.....	1,820,300	25.38	9.37	9.56	131.53	103.75	85.55	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	91.45	68.57	5.31	16.01
1932.....	1,859,400	24.17	9.97	9.98	137.52	113.75	89.06	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	91.91	60.79	5.99	14.20
1933.....	1,890,300	23.55	9.35	9.27	142.52	100.30	95.33	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	92.55	62.81	4.73	13.76
1934.....	1,914,700	23.44	9.68	9.55	156.21	94.53	92.39	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	93.17	56.57	5.10	14.64
1935.....	1,973,700	24.18	10.45	10.28	169.58	131.98	95.76	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	92.88	59.06	4.38	14.81
1936.....	2,008,700	24.21	9.57	9.50	172.97	106.19	97.28	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	93.17	51.69	3.69	15.53
1937.....	2,043,700	24.90	10.08	9.66	153.55	102.53	103.44	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	94.20	49.48	3.61	15.88
1938.....	2,081,400	25.01	9.48	8.93	170.42	90.05	104.75	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	94.32	50.02	3.37	15.87
1939.....	2,116,500	25.29	9.40	8.75	190.18	89.93	102.80	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	94.75	50.93	2.49	15.47
1940.....	2,152,700	25.29	9.42	8.65	197.61	86.14	109.40	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	94.83	47.52	2.83	15.83
1941.....	2,188,200	24.94	9.47	8.65	199.69	81.97	109.33	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	95.25	45.60	2.85	16.41
1942.....	2,230,000	25.18	9.35	8.65	211.92	92.23	109.98	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	95.03	42.53	2.20	17.30
1943.....	2,265,000	25.94	9.53	8.65	214.83	84.78	111.96	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	95.59	40.33	2.10	16.16
1944.....	2,300,000	26.63	9.33	8.65	236.10	85.65	112.59	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	95.59	40.33	2.10	16.16
1945.....	2,335,000	25.48	9.32	8.65	236.10	85.65	112.59	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	♂ ♂ ♂	95.59	40.33	2.10	16.16

* The rate which would have obtained had the age and sex distribution of the population been the same as that of England and Wales at the 1901 Census, the standard usually taken for international comparisons.

† Medically certified deaths only. Rates for subsequent years calculated on the total deaths registered.

‡ Actual (per census).

§ Includes miners' phthisis combined with pulmonary tuberculosis.

|| Not yet available.

¶ Not available.

TABLE 2.—ESTIMATED POPULATION, 1945, BY RACE.

Province.	European.			Native.			Asiatic.			Coloured.		
	M.	F.	P.	M.	F.	P.	M.	F.	P.	M.	F.	P.
Cape.....	426,000	425,000	851,000	1,008,800	1,283,600	2,292,400	7,700	4,800	12,500	403,200	399,600	802,800
Natal.....	117,000	118,000	235,000	859,200	946,600	1,805,800	107,100	102,100	209,200	11,200	11,000	22,200
Transvaal....	536,000	514,000	1,050,000	1,707,800	1,317,400	3,025,200	18,100	13,000	31,100	30,700	30,200	60,900
Orange Free State.....	100,000	99,000	199,000	305,500	328,200	633,700	—	—	—	9,200	8,500	17,700
UNION....	1,179,000	1,156,000	2,335,000	3,881,300	3,875,800	7,757,100	132,900	119,906	252,800	454,300	449,300	903,600

TABLE 3.—COMPARISON OF BIRTH, DEATH AND NATURAL INCREASE RATES AMONG EUROPEANS IN THE UNION WITH OTHER COUNTRIES. AVERAGE RATES FOR THREE-YEARLY PERIODS (BASED ON LATEST AVAILABLE INFORMATION).

Countries.	Birth Rate.	Death Rate.	Natural Increase.
Union of South Africa..	26·0	9·4	16·6
Holland.....	21·4	9·9	11·5
Canada.....	23·0	9·8	13·2
Portugal.....	24·5	15·4	9·1
New Zealand.....	21·9	10·1	11·8
Italy.....	20·5	14·0	6·5
Australia.....	19·7	10·3	9·4
Germany.....	16·8	12·5	4·3
United States of America	20·1	10·3	9·8
England and Wales....	16·5	11·9	4·6
France.....	14·5	16·9	*

* Decrease.

TABLE 4.—INFANTILE MORTALITY RATES : EUROPEANS IN THE UNION COMPARED WITH OTHER COUNTRIES. AVERAGE RATES FOR THREE-YEARLY PERIODS (BASED ON LATEST AVAILABLE INFORMATION).

New Zealand.....	30
Holland.....	41
Australia.....	39
Union of South Africa.....	43
England and Wales.....	49
Canada.....	54
Germany.....	68
France.....	73
Belgium.....	73
Italy.....	109
Lithuania.....	118
Portugal.....	129

III.—PROMOTIVE HEALTH SERVICES.

The National Health Services Commission endorsed the view of the Medical Association of South Africa that a mere revision or even an extension of medical services alone would do little to improve the nation's health. The Association, indeed, indicated that its support for any form of socialised medicine would be contingent upon the institution of "drastic reforms" designed to overcome the economic poverty and the social backwardness which, quoting from the Commission's Report, are "first and foremost among the causes of illhealth".

According to the Commission, promotive health services are "those concerned with building up good health in the individual—adequate wages, nutrition, general education, physical exercise and recreation, industrial welfare and hygiene, etc."

Of recent years there have been many important developments in the field of promotive health. In this connection special mention should be made of the establishment of the Social and Economic Planning Council. The very existence of such a body is in itself an important indication of the intention of the State to plan soundly for the economic and social welfare of the Union. The various reports and recommendations of the Council lay emphasis upon the necessity for a high standard of health as a vital

factor in national productivity, and take full cognisance of the basic importance of promotive health services in the creation and maintenance of a healthy population. It is therefore appropriate that the report of this Department, charged as it is with the duty to promote as well as to safeguard the health of the Union, should record the progress and the deficiencies of promotive health services as defined above.

INCREASE OF NATIONAL INCOME AND CHANGES IN ITS DISTRIBUTION.

Poverty and ignorance are the two chief causes of illhealth. Of great significance, therefore, is the marked increase of national income which has taken place during recent years. It is true that much of this is counterbalanced by the diminished purchasing power of money, but even after allowance has been made for that factor, there remains a real increase. It is true also that the increase has been due to the War, and may therefore be partly or even wholly transient. But much is being done to ensure that the advances made in the industrial sphere during the War shall not only be maintained but also be carried further. Thus there have been established the Industrial Development Corporation, to assist in the establishment of new industries; the Council of Scientific and Industrial Research, to assist in basic technical research; and the Bureau of Standards, to assist in the maintenance of high standards of quality in manufacture. There is direct representation of the Department of Health on the Medical Research Committee of the Council of Scientific and Industrial Research and on several committees of the Bureau of Standards dealing with food products, hospital requisites, and the like.

Of greater importance from the viewpoint of promotive health is the distribution of the increase in national income. The distribution can be regulated to some extent by the State, directly by wage determinations (made through the Wage Board and through agreements under the Industrial Conciliation Act) and indirectly by taxation. Various analyses show that during the War there has been a greater percentage increase of incomes among the lower-income groups than among the higher-income groups. An effect, and proof, of this is seen in the greatly increased national consumption of food, particularly the more expensive foods such as meat, dairy products, and sugar.

Another factor which of recent years has diminished poverty has been the introduction, or augmentation, of schemes for social assistance—improved old age pensions, blind pensions, disability grants, mothers' grants, the introduction of old age and blind pensions for Natives, increase of compensation under the Workmen's Compensation Act (1941), and so forth. Many millions of pounds are being spent on these services, none of which is on a contributory basis in so far as the beneficiaries are concerned, so that they represent a real transfer of a part of national income to the most needy.

GENERAL EDUCATION.

Ignorance especially among the vast Non-European population of the Union, is as potent a cause of illhealth as poverty itself, possibly even more potent. One of the most important and significant developments in the field of promotive health during recent years has been the shifting of the financial burden of Native education from

the limited resources of the South African Native Trust Fund (limited to revenue from direct taxation of Natives) to the Consolidated Revenue Fund. This transfer makes possible the expansion of education services for the entire community, which in the opinion of the National Health Services Commission is "basic to a true and lasting solution of the problems of illhealth". Healthy living and the avoidance of preventable disease require the intelligent coöperation of the individual himself with the organised health services, and such coöperation cannot be given by persons whose minds are steeped in ignorance and superstition. Health education must be based on general education. The greatly increased expenditure on Non-European education during recent years must therefore be regarded as a far-reaching advance in the field of promotive health.

NUTRITION AND HEALTH EDUCATION.

These two aspects of promotive health services are reviewed together, not only because of the intimate relationship between them but also because a special Division of the Department has been created in order that special attention may be given to them. Arising out of the recommendations made in the Report of the National Health Services Commission regarding the general development of the activities of the Department of Health, there has been established a Division of Nutrition and Health Education, as an integral part of the Department of Health. This has been effected by the expansion of the section of Nutrition into a larger unit which, while continuing the investigational and statistical work previously undertaken, will integrate its educational and propaganda work with general health educational activities.

These developments have of necessity been accompanied by a change in departmental policy. Whereas in the past the initiative in matters relating to health education and propaganda has been left largely in the hands of interested voluntary agencies, the Department has now assumed primary responsibility therefor, and proposes embarking upon an extensive and continuous educational and propaganda campaign. This will take the form of the production of suitable films, in conjunction with the Film Division, Union Education Department; the preparation of posters and pamphlets, in collaboration with the State Information Office; and the preparation of lectures for both the medical profession and the public on appropriate subjects, and suitable radio talks.

The Department has always recognised the value of voluntary effort in the field of health education and has no desire or intention to interfere with the freedom of voluntary organisations to undertake such forms of health education as they may desire. It, however, expects that organisations undertaking such work will seek appropriate professional guidance in medical and health subjects, and will always be prepared to furnish them with advice in regard thereto on request. This applies particularly to those organisations which are in receipt of annual grants from the Department towards meeting expenditure incurred by them in the field of health education.

It is only to be expected that with the assumption by the Department of increased responsibility in matters relating to health education, there should be a reduction in the subsidies paid to voluntary agencies. In this respect the position of the South African Red Cross Society has been effected to a greater extent than any of the other organisations which are in receipt of Government assistance. For a number of years this Society has been in a special position, in that it was selected by the Department as its principal agent for the production and distribution of health educational material. During the period 1941 to 1947 the Society was granted an annual subsidy of £5,000 towards meeting expenditure on its health educational activities, but this amount has now been reduced to £1,150, as a considerable proportion of the work previously undertaken by it is now being dealt with departmentally.

In the above connection it is desired to express the Department's appreciation of the part that has been played in the past by the various voluntary organisations, more particularly the S.A. Red Cross Society, in the development of health educational services in the Union. The Department will look forward to the continued co-operation of these several organisations, which it numbers among its most valuable allies in the great task of promoting the welfare of the people of South Africa through health education.

This new Division has been placed under the charge of Dr. R. J. Smit, an officer of long experience in the Department. Dr. Smit has a wide knowledge of living conditions of all sections of the community. In particular, his knowledge of the less privileged groups was gained during a number of years service first as District Surgeon of Wynberg in the Cape, later as Medical Inspector and subsequently as Assistant Health Officer in the Transkeian Territories; in these spheres he gained first hand knowledge of nutritional and health educational problems against a background of tremendous need.

The organisation of the Division of Nutrition and Health Education on a basis which will enable it to discharge its duties, not the least of which is to promote the work of the Nutrition Council, is at present engaging his attention. Various important recommendations already made by him regarding the future organisation of the Division are at present under consideration by the Department.

One of the first tasks tackled by the Division was to undertake a survey of the existing position regarding health education and propaganda activities in the Union. This survey revealed that while a large number of organisations, both official and non-official, are engaged in work of that nature in some form or other, there is insufficient co-ordination of their work. The Division, to which has been assigned, *inter alia*, responsibility, in collaboration with the Publicity Committee for State Social Services, for guiding and assisting all forms of health education, is at present formulating proposals designed to bring about better co-ordination of effort in the sphere of health education.

As at the 30th June, 1947, the authorised establishment of the Division of Nutrition and Health Education was as follows:—

Technical Personnel.

Chief of the Division.....	1
Nutrition Officer.....	1
Principal Professional Officer (Nutrition).....	1
Principal Officer (Economics).....	1
Professional Officer (Dietetics).....	1
Assistant Professional Officers (Dietetics).....	6

Administrative and Clerical Personnel.

Principal Clerk (Secretary to the National Nutrition Council).....	1
1st Grade Clerk.....	1
2nd Grade Clerk.....	1
2nd Grade Woman Clerk.....	1

In common with the activities of the Department of Health in other spheres, lack of personnel limits the services which can be undertaken by the Division. The greatest difficulty is being experienced in securing suitably qualified personnel to fill the various posts on the existing establishment.

The former Nutrition Officer, Dr. J. M. Latsky, resigned towards the end of 1946 to take up a position on the staff of the Food and Agriculture Organisation of the United Nations and up to the present it has not been found possible to replace him. Of the six posts of Assistant Professional Officer (Dietetics), five are vacant and the immediate prospects of filling these posts are not favourable owing to the dearth of suitably qualified applicants. In this connection it is significant that recent advertisements in

the Government Gazette and public newspapers calling for applications for the filling of these vacancies met with no response. On the clerical side also the staff is not up to strength.

At the time of writing, the second report of the National Nutrition Council, which has been prepared by the Division of Nutrition and Health Education in collaboration with the Nutrition Council, is in the press.

The introductory section describes the establishment of the National Nutrition Council as "the local reaction to a world wide awakening to the relationship between feeding and preventable disease". The position regarding the functions of the Council, in respect of which there has in the past been considerable misunderstanding in both official and non-official circles, is clarified, and the fact stressed that the Council is a purely advisory body created for the purpose of investigating and reporting to the Minister of Health "upon all matters relating directly or indirectly to the prevention of malnutrition in and the improvement of the diet of the inhabitants of the Union". Although the Council is not directly responsible for the actual production or distribution of food, or for financing and administering State or State-aided feeding schemes, attention is drawn to the importance of "maintaining the closest liaison with all state and other agencies concerned with food production and distribution, as well as with socio-economic problems". In describing the composition and achievements of the Council, the report emphasises that the opportunity which it affords for the "exchange of viewpoints and information at the highest administrative and technical levels has resulted in findings and recommendations which are not only practical and sound, but which have had a direct influence on the policies of the Government Departments concerned".

Under the heading "Allied Organisations", Chapter II, deals with the establishment by the United Nations of an international Food and Agricultural Organisation (F.A.O.), and the setting up in the Union of a local Food and Agriculture Organisation Liaison Committee. The former is described as "the fact-finding, research and advisory institution of the United Nations in the field of nutrition", which "will endeavour to link the known needs of the people for food more directly with the means for satisfying these needs", while the latter body serves as the connecting link between the National Nutrition Council and other organisations concerned with the nutrition of the Union's population, and the Food Agriculture Organisation of the United Nations. In the Council's opinion "the Union stands to benefit immensely from its association with F.A.O."

Chapter III of the report contains a fairly comprehensive review of the more important aspects of the work of the principle Government Departments and other agencies "responsible for the production, marketing and distribution of the nation's food, and the organisation of supplementary feeding schemes and cognate services", matters on which the Council's advice is frequently sought "on the nutritional plane". In addition, informative statistics are included relating to "production and consumption trends in the Union of some of the principle foods during the pre-war period and subsequent years", which indicate "that generally there has been a noticeable and in many instances a striking increase in the amount of food produced" . . . and that "the shortages which have been so noticeable in recent years are due far more to an increase in consumption than a fall in production".

Feeding services are dealt with further in Chapter IV, in which tribute is paid to "the excellent work in the field of nutrition performed by local authorities, voluntary organisations and in several instances by private individuals", which not only themselves organise and administer schemes designed to relieve distress in times of disaster and generally improve the diet of the less privileged groups, but also in several instances "co-operate with official organisations in administering certain of the State or State-aided schemes described in the preceding Chapter".

Chapter V is devoted to a review of events leading up to the decision of the Government to centralise the control of all State or State-subsidised research in the Union, including nutritional research, under the Council for Scientific and Industrial Research in the case of "fundamental laboratory" research and the National Council for Social Research in the case of "field research"; the relationship between the Nutrition Council and those two bodies; the steps taken by the Council to stimulate studies on problems "fundamental to nutrition or in which nutritional considerations may be contributory factors", and research projects undertaken or proposed by members of the Council and others.

Of particular interest among the research undertakings discussed are those relating to—

- (a) "the effect of bread rich in phytate phosphorous on the metabolism of certain mineral salts, with special reference to calcium";
- (b) the fortification of Standard Bread "with calcium carbonate (irrespective of whether the alleged interfering action of phytic acid on the assimilation of calcium is substantiated or not) in order to raise the low calcium intake which commonly occurs in the diets of the Union"; and
- (c) "the chemical composition and vitamin content of common South African foods".

The question of food yeast is discussed at some length in Chapter VI, which describes the steps taken by the Government, on the recommendation of the Council, to investigate the economic and technical aspects of the manufacture of food yeast in the Union and the possibilities of using that product for improving the vitamin B complex and protein content of the diet of the lower income groups, more particularly the Natives.

After reviewing research on the subject undertaken in the Union and elsewhere, the report refers to the Council's recommendation that measures be introduced with a view to "the compulsory fortification of all mealie meal sold in the Union with from 1-1.5 per cent. of food yeast", and states that "the practicability of giving effect to this recommendation is at present under consideration by the Government".

On the subject of "Milk and Milk Products", Chapter VII deals with the "Supply Position", the "Relative Nutritional Value of Milk and Milk Products", "The Importance of Milk in Combating Tuberculosis", and "Pasteurisation of Milk".

In referring to milk, the report states that "it is universally recognised that of all substances consumed as food, the position of milk is unique, in that its composition is such that it comprises the nearest approach to a perfect food found in any one particular article in the natural state". Nevertheless investigations undertaken by a prominent member of the Council indicate that "our annual milk production is 300,000,000 gallons which is only about one-third of the amount required to provide the total population with a moderately adequate supply". The urgent need for increasing the Union's milk supply is accordingly emphasised.

In regard to pasteurisation, the Council agreed with its Research Committee when it expressed itself in the following terms, after considering the matter from the purely nutritional angle:—

"This Committee is satisfied that all scientific and medical evidence on the pasteurisation of milk has proved that provided that pasteurisation is properly carried out there is no significant loss of nutritional value."

The Council's activities in regard to "Nutrition Education Publicity and Propaganda" are examined in Chapter VIII, which contains suggestions for co-ordinating and improving

the teaching of nutrition in Schools and Training Colleges ; gives an account of the assistance rendered by members of the Council and the Staff of the Division of Nutrition and Health Education at various conferences, health weeks and similar functions organised by numerous other bodies, and indicates the progress and expansion made during recent years in regard to the production and distribution of publicity and propaganda material relating to nutrition.

Under the heading "Miscellaneous", the activities of the Council and the staff of the Division of Nutrition and Health Education in regard to the following matters are commented upon in Chapter IX :—

- (a) suggestions made by the Council for increasing the staff of the Division of Animal and Crop Production ;
- (b) consideration of various aspects of the Union's food supply position and advising the Director of Food Supplies and Distribution on the nutritional aspects of rationing and allied problems ;
- (c) recommendations by the Council regarding the introduction of an improved system of veterinary services for the Union ;
- (d) consideration of the position of maize as a human food.
- (e) co-operation with the Department of Native Affairs in formulating proposals with a view to improving Native nutrition and relieving distress in drought stricken areas ;
- (f) recommendations regarding the development of inland fisheries in the Union ;
- (g) co-operation with the South African Bureau of Standards in connection with the preparation of specifications for certain foodstuffs manufactured or sold in the Union ;
- (h) investigating the position regarding the sale of certain articles of food described as "vitaminised" ;
- (i) investigating diets in Government and State-aided institutions and drawing up suitable revised diet scales, where necessary ;
- (j) investigating the position regarding the training of dietitians in the Union ; and
- (k) examining various official publications from the nutritional angle.

To summarise, in addition to reviewing the work of the National Nutrition Council since its last report was published during 1944, the Council's second report gives a clear picture of the organisation of nutritional and cognate services in the Union, which may briefly be described as follows :—

- (a) The National Nutrition Council, which is the technical and advisory body on matters relating directly or indirectly to the prevention of malnutrition and the improvement of the diet of the people ;
- (b) the Food and Agriculture Organisation Liaison Committee, which functions under the Department of Agriculture and supplies the necessary co-ordinating link between the Nutrition Council and other official bodies concerned with food production, distribution, marketing, etc., and the Food and Agriculture Organisation of the United Nations, which deals with such matters on the international level ;
- (c) the Department of Agriculture, which is concerned with the production and marketing of the country's food supplies ;
- (d) the Directorate of Food Supplies and Distribution, which is responsible for the organisation of state food distribution services ;
- (e) the Department of Social Welfare, which subsidises and in certain instances administers schemes designed to improve the nutrition of the lower income groups, excluding Natives ;

- (f) the Department of Native Affairs, which is responsible for the organisation and administration of measures designed to improve Native agriculture, and also subsidises and administers certain schemes for improving the nutrition of the Native population ;
- (g) Provincial Administrations, which finance and administer the National School Feeding Scheme, except at Native Schools ;
- (h) the Union Education Department, which finances and administers school feeding at Native schools, except in Natal, where the Provincial Administration administers the scheme at such schools on behalf of the Education Department and meets the administration costs ; and
- (i) local authorities and various voluntary agencies, which co-operate with Government Departments in administering certain of the State or State-aided feeding schemes described in the report, and in several instances themselves organise, finance and administer relief measures on a voluntary basis, especially in times of distress.

During the period covered by the report, the membership of the National Nutrition Council was as follows :—

Chairman :

Dr. the Hon. Henry Gluckman, Minister of Health.

Members Appointed in Terms of Section 2 (1) of Act No. 14 of 1940.

Dr. G. W. Gale, Secretary for Health (*Deputy Chairman*).
 Dr. C. G. Neveling, Secretary for Agriculture.
 Mr. G. A. C. Kuschke, Secretary for Social Welfare.
 Mr. G. Mears, Secretary for Native Affairs.
 Mr. F. L. A. Buchanan, Secretary for Labour.

Members (Alternates) Appointed in Terms of Section 2 (2) (a) of Act No. 14 of 1940.

Dr. H. S. Gear, Deputy Chief Health Officer, Department of Health.
 Dr. F. J. van Biljon, Chairman, National Marketing Council.
 Dr. F. Brummer, Under-Secretary for Social Welfare.
 Mr. F. Rodseth, Under-Secretary for Native Affairs.
 Mr. L. E. Orkin, Under-Secretary for Labour.

Members Appointed in Terms of Section 2 (1) (c) of Act No. 14 of 1940.

Dr. R. J. Smit, Chief of the Division of Nutrition and Health Education, Department of Health.
 Dr. B. A. Dormer, Chief of the Division of Tuberculosis, Department of Health.
 Dr. H. S. Gear, Deputy Health Officer, Department of Health.
 Dr. J. M. Latsky, Nutrition Officer, Department of Health.
 Dr. F. J. van Biljon, Chairman, National Marketing Council.
 Mr. S. J. de Swardt, Chief of the Division of Economics and Markets, Department of Agriculture.
 Professor H. D. Leppan, Department of Agriculture.
 Dr. P. J. du Toit, Director of Veterinary Services, Department of Agriculture.
 Mr. I. J. Raats, Director of Census and Statistics.
 Dr. F. J. de Villiers, Department of Commerce and Industries.

Members Appointed in Terms of Section 2 (1) (d) of Act No. 14 of 1940.

Dr. E. H. Cluver, Director, South African Institute for Medical Research.
 Dr. F. W. Fox, South African Institute for Medical Research.
 Professor J. F. Brock, Professor of the Practice of Medicine, University of Cape Town.
 Professor H. R. Burrowes, Professor of Economics, Natal University College.
 Mrs. Bertha Solomon, M.P.

Mr. H. A. J. Wium, Representing Agricultural Interests.
 Mr. A. L. Barrett, Representing Native Interests.
 Mr. E. P. Pearce, Ex Director of Census and Statistics.

Secretary :

Mr. C. Marr.

PHYSICAL EXERCISE AND RECREATION.

The interrelationship between the beneficial use of leisure and good health, particularly in the modern world of fierce stresses and strains, is clearly perceptible ; and fully justifies the placing of physical exercise and recreation (in the widest sense) among the health promotive services. Physical education remains under the immediate guidance of the Department of Education, but the Department of Health is directly represented on the bodies which guide both routine and research activities in this field. Routine activities are being rapidly developed, mainly through assistance to schools and other agencies ; and authority has been obtained for the appointment of a whole-time medical research officer in this field. Adult educational services, which aim to do for the mind what physical education does for the body, are being developed by the Department of Education. Recreational and social clubs, established on a co-operative basis between voluntary agencies and the Department of Social Welfare, are also making a valuable contribution in this field. Notable among these voluntary agencies is the National War Memorial Health Foundation, with its splendid motivating concept of a healthy nation as a living memorial to the effort and sacrifice called forth by the War.

INDUSTRIAL HYGIENE AND WELFARE.

Industrial Hygiene and Welfare remains under the immediate control of the Department of Labour, which administers the Factories Act, but here again there is close coöperation between the Departments of Labour, Health and Social Welfare. Important recent developments have been the establishment of facilities for training in personnel management and, under the Council of Scientific and Industrial Research, of a National Bureau for Personnel Research. As these activities are expanded they will make a vital contribution to the health and welfare of industrial workers. Special mention may be made here of the welfare services provided by the Railway Administration for its employees. This example has been followed by semi-State organisations such as Iscor, and also by many private firms. There is as yet, however, no counterpart in the sphere of industrial hygiene and welfare to the national bodies—the National Nutrition Council, the National Advisory Council for Physical Education, the Social Welfare Organisations Board—which stimulate and assist developments in other spheres of promotive health services. The establishment of a National Advisory Council for Industrial Hygiene and Welfare has been mooted, and was supported by the National Health Council at its first meeting. In view of the health problems which inevitably accompany rapid industrialisation, there can be no doubt that such a body could make a valuable contribution to the promotion of the health of industrial workers.

IV.—NON-PERSONAL HEALTH SERVICES.

The term environmental, or non-personal, health services includes the provision of the necessities such as domestic water supplies, housing, sanitation and the removal of refuse which are essential in any civilized community. The provision of these services on an adequate scale and in a satisfactory manner is one of the most fundamental duties of local authorities.

The Public Health Act places an obligation on local authorities to safeguard and promote the public health of their areas and to prevent, or to cause the removal of, statutory nuisances.

The Housing Act and its amendments enables local authorities to make use of public funds at low rates of interest for the provision of suitable housing for all classes of the community. The Slums Act enables those local authorities to which it is applied to demolish slums in an

expeditious manner and to acquire slum areas for the development of municipal housing schemes where this is necessary. There is also provision in the Public Health Act for the demolition of slum properties and this legal machinery is available to all local authorities. The question of housing and the activities of the National Housing Commission are dealt with in the appropriate section of this chapter.

Under the various provincial ordinances local authorities are empowered to incur expenditure on the provision of services, such as water supplies and sanitary services, which are necessary for the maintenance of health. The provincial ordinances also give to the local authorities the power to promulgate local by-laws (or regulations in the Cape Province) for the maintenance of order, the prevention and control of nuisances and the maintenance of satisfactory environmental conditions from the point of view of the public health. In their efforts to ensure that conditions in their areas are satisfactory, the local authorities use their own by-laws to a much greater extent than the Public Health Act as the by-laws are generally more detailed, are framed to suit the local conditions and are, therefore, more satisfactory from this point of view and are easier to operate.

It is impossible to generalize about the state of the domestic water supplies and of general sanitation in South Africa. In the larger towns water supplies are, generally speaking, entirely above reproach while sanitation and hygiene, in most areas of these towns, compare favourably with those in other civilized and advanced countries throughout the world. In most, if not all, of our larger towns, however, there are slum areas of greater or lesser extent, where, in addition to bad and overcrowded housing conditions, are to be found conditions of insanitation which are detrimental to health. Such areas are to be found not only in Native locations and other non-Europeans quarters but also in some European areas, while a few areas still exist where Europeans and Non-Europeans live in close proximity to each other under slum conditions. To the credit of the local authorities it must be said that such conditions are not regarded with equanimity but that the great majority of municipalities are doing everything in their power to improve the living conditions of the less privileged classes of the community. During the last few years, under war conditions, and the aftermath of war, this has been a very uphill struggle but, despite the scarcity of building materials, shortage of manpower and other problems, there is no doubt whatever that a great deal has been done to alleviate and improve conditions.

In some of the large towns industrial development has been extremely rapid during the last few years, partly due to war conditions. The demand for labour in these areas has accordingly been very great and this, combined with other factors, has caused an influx of Natives to the larger towns on a scale which is quite unprecedented. This has resulted in gross overcrowding of Native locations and other areas and has given rise to the formation of "squatter camps" on the outskirts of some of these towns. The squatter problem in and around Johannesburg, where it has reached very serious proportions, is dealt with in the portion of this chapter which is entitled "Rural and Peri-Urban Sanitary Conditions".

In the smaller towns and villages environmental health conditions present a rather different problem. Here overcrowding is not so much in evidence as in the large towns ; on the other hand sanitation and general hygiene often leave much to be desired. Where public water supplies are provided by the local authority these are usually, but not always, satisfactory from a health point of view. In the country towns sanitation is usually provided by the pit system except in the smallest villages where the pit system is still in vogue. Either of these systems, unless carefully carried out, is liable to constitute a danger to health through the spread of intestinal infection, especially by flies. Intestinal diseases, and particularly typhoid fever, are thus found much more commonly in

the country districts. Flies are a much greater problem in the rural and semi-rural areas than in the large towns. This is the result of insanitary conditions, especially where horses, cows and other animals are kept on domestic premises. With the increasing use of motor transport in place of animal-drawn vehicles the position in this regard is improving steadily but, in most country towns, there is still much room for further improvement.

Officers of the Department carry out systematic health inspections of these country towns and villages as frequently as circumstances allow in order to ensure that environmental health conditions are maintained at a satisfactory

standard and to advise the local authorities on matters which need improvement. As the staff of the Department is small, it is unfortunately not possible to carry out these inspections as frequently as is desirable but, in any case where unsatisfactory conditions are brought to the notice of the Department, a special effort is made to have these investigated. All such inspections are followed up by correspondence to a satisfactory conclusion wherever that is possible.

Table 5 indicates the number and the various types of local authorities in the different provinces.

TABLE 5.—LOCAL AUTHORITIES UNDER PUBLIC HEALTH ACT (1919) AS AT 30TH JUNE, 1946.

Province.	City and Town Council.	Village Management Boards.	Local Boards.	Village Councils.	Health Committees.	Town Boards.	Magistrates.	Divisional Councils.	Board of Health.	Mining Commissioners.	Rural Local Authority.	Local Health Commission (Natal) and Peri-Urban Areas Health Board (Transvaal).	Total.
Cape.....	140	87	24	—	—	—	29	95	1	1	1*	—	378
Natal.....	11	—	—	—	35	26	46	—	—	—	—	1	119
Orange Free State.....	65	4	—	—	—	—	38	—	—	1	—	—	108
Transvaal.....	39	—	—	32	47	—	37	—	—	1	—	1	157
TOTAL.....	255	91	24	32	82	26	150	95	1	3	1	2	762

* Vaal-Hartz Rural Local Authority with area of jurisdiction extending into the Transvaal.

HOUSING.

Because there is a strong current tendency for local authorities to suggest or even insist that housing is a national responsibility, I venture to point out that Union legislation, directly and indirectly, imposes upon local authorities a primary duty in regard to this matter:—

- (1) Section 10 (1) of the Public Health Act (No. 36 of 1919), read in conjunction with Chapter VIII of the Act, makes clear that local authorities have a general duty to prevent insanitary housing in their areas.
- (2) Section 7 (3) of the Housing Act (No. 35 of 1920) states that “before approving any scheme (i.e. a housing scheme in respect of which a local authority requires a loan from the provincial housing loans fund) the administrator may require the local authority in whose area it is intended that such scheme shall be carried out to make reasonable provision for dwellings for the poorest section of the population including the Coloured and Native people”.
- (3) Section 3 of the Slums Act (No. 53 of 1934)—under which the great majority of local authorities with urgent housing problems are scheduled—states that “it shall be the duty of the local authority to take all lawful, necessary and reasonably practicable measures . . . for ensuring the provision of suitable housing generally and as far as circumstances permit for the inhabitants of its district”.
- (4) The Natives (Urban Areas) Act imposes specific obligations upon local authorities in respect of the provision of accommodation for Natives employed in their areas.

Until recently, it was considered (by the Treasury) that subsidised housing should be provided only for persons whose incomes were below £25 per mensem; the level has now been raised to £30 per mensem. Up to 1945 housing for the economic groups was being provided by—

- (1) private enterprise, including Building Societies;
- (2) local authorities making use of economic housing loan funds for the purpose of—
 - (a) constructing houses for sale;
 - (b) constructing houses for letting;
 - (c) making loans to utility companies;
 - (d) making loans to individuals.

- (3) Building Societies in coöperation with the State, under the Additional Housing Act (No. 41 of 1937). This scheme was suspended in 1941.

In 1945 the National Housing and Planning Commission also entered the field, with a view to filling the gap which, by this time, was becoming apparent between sub-economic housing and economic housing provided by the foregoing agencies. Building (and land) costs had increased so greatly that these agencies found it no longer possible to build houses which, let at economic rentals, were within the capacity of the income group £25 to £50 per mensem. From the outset, the Commission gave special consideration to the needs of this group. By paying special attention to economy in design and construction, by judicious land purchases and careful lay-out of schemes, and by the building of “maisonettes”, the Commission has succeeded in producing satisfactory houses at an economic rental which is still within the capacity of the income groups of £25 to £50 per mensem. It is only 1½ years since the Commission commenced its own building programme, which is carried out by contractors under the technical supervision of the Directorate of Housing. Progress was necessarily cautious and slow at first, but, now that the Directorate has acquired experience, the tempo can and will be greatly accelerated. The limiting factors now—assuming that Treasury will supply all the funds required—are materials and manpower. As there are few urban families (European) today which earn less than £25 per mensem, the continuation of the Commission’s programme should almost entirely preclude the necessity for sub-economic schemes for Europeans.

The special position in Natal with regard to housing matters requires explanation. Under the Housing (Emergency Powers) Act No. 45 of 1945, powers were conferred upon the Provincial Council of Natal to establish a housing board for the Province with powers and functions analogous in most respects to those of the National Housing and Planning Commission. Negotiations between the Administration and the Government led to the promulgation of regulations applicable to the Board so established corresponding generally to those already applicable to the Commission in respect of the other three Provinces as indicated in the report for the year ended 30th June, 1946. These regulations were published on the 10th May, 1946 (Proclamation No. 108 of 1946) but their administration by the Natal Housing Board could not be undertaken until the financial relations between the Provincial Adminis-

tration and the Government *vis-a-vis* the Board had been clarified. It was, therefore, not until August, 1946, when agreement between the Province and the Government in regard thereto was arrived at, that the Board commenced to exercise its powers and functions in respect of Natal to the full.

Since then the Natal Housing Board has, for all practical purposes, become responsible for housing matters in Natal in place of the National Housing and Planning Commission although still required generally to adhere to the over-all policy of the Government in regard to the provision of housing for all sections of the community, and although still subject to control by the central Government in so far as housing schemes involving the advance of moneys by the Government on subsidised bases are concerned.

As a result of this division of responsibility it has been decided that this review of the housing situation as it has developed under the Housing Acts should reflect the activities of the National Housing and Planning Commission operating primarily in the Cape, O.F.S., and Transvaal Provinces.

Table 6 is a summary of the position with regard to housing provided from public loan funds. If it be compared with Table 42 in last year's Report, it will be observed that the nomenclature of certain of the schemes of financial assistance to local authorities has been changed. Thus it will be noted that the term "Economic Housing" has been replaced by the term "National Housing 3½ per cent."; that the term "Sub-economic Housing" has now been replaced by the term "National Housing Assisted ¾ per cent."; and that the term "National Housing" has been replaced by the term "National Housing Assisted ¾ per cent.". It will be noted also that the numbers of dwellings approved for European and Non-European housing under the heading "National Housing Assisted ¾ per cent." shows a substantial decrease compared with the corresponding figures in respect of "Sub-economic Housing" for the previous year. The apparent decrease is, however, due to the conversion of "National Housing Assisted ¾ per cent." schemes into "National Housing Assisted ¾ per cent." schemes, so that a true picture of the progress which has been achieved in respect of what are essentially "sub-economic" housing schemes is dependent upon the combination of the figures in respect of the two categories. Thus it will be seen that, for the twelve months ended 30th June, 1947, the progress in

dealing with the housing situation is reflected by—

(a) an increase of 3,191 in the total number of dwellings approved in the four categories mentioned in the Table; and

(b) an increase in the loans approved of £5,280,961.

An analysis of the basic figures reveals that out of the total 3,191 new dwellings approved during the year, approximately one-third (1,059) were included in the category "National Housing 3½ per cent." and, of these, 7 were for Non-European occupation, while the average of the loans granted computes to approximately £1,827 per dwelling.

In the second and third categories indicated in the Table (i.e. the categories formerly referred to as "sub-economic"), loans amounting to £3,308,898 were approved in respect of 2,031 dwellings or an average of £1,629 per dwelling. Actually the amount of £3,308,898 represents the full estimated cost of contemplated schemes inclusive of development costs thus accounting for a large proportion of the cost per unit. Nevertheless the increasing cost of schemes aimed at providing for the poorest section of the population has been a source of grave concern to the National Housing and Planning Commission. Accordingly, in an effort to curb any tendency towards extravagance on the part of local authorities, the Government has imposed limitations upon the losses per unit which it is prepared to accept under the National Housing Formula. In the case of European housing the limit is therefore £65 per dwelling per annum in scheduled areas or £50 per dwelling per annum in non-scheduled areas, with correspondingly lower figures for Non-European housing.

Further, the National Housing and Planning Commission has been authorised itself to undertake in as many centres as possible the construction of economic housing for Europeans, for letting and, eventually, selling purposes. As already explained, the houses being constructed under this mandate are meeting the needs of the income group £25 to £50 per mensem, for whom private agencies and even local authorities are failing to make provision on an economic basis. The Commission's own building programme was at first tentative and experimental, but now that experience has been gained the rate of production is being greatly accelerated. Thus, while at the beginning of the twelve months under review, 206 dwellings had been completed

TABLE 6.—HOUSING ACT NO. 35 OF 1920 : WORKING FROM PROMULGATION, 16TH AUGUST, 1920, TO 30TH JUNE, 1947.

PROVINCE.	Loan Applications Approved.			Loan Issues.	Number of Houses.					
	European.	Non-European.	Total.		Completed.	Under Construction.	Approved, but not yet Commenced.	Total.	Total for European Occupation.	Total for Non-European Occupation.
(A) <i>National Housing 3½%—</i>	£	£	£	£						
Cape.....	3,207,588	718,042	3,925,630	3,324,140	8,520	223	364	9,107	3,904	5,203
†Natal.....	665,234	276,269	941,553	754,713	1,245	2	229	1,476	611	865
Orange Free State.....	1,149,562	20,618	1,170,180	854,674	2,619	126	111	2,856	1,216	1,640
Transvaal.....	4,479,411	293,412	4,772,823	4,165,923	6,195	204	602	7,001	4,496	2,505
TOTAL.....	9,501,845	1,308,341	10,810,186	9,099,450*	18,579	555	1,306	20,440	10,227	10,213
(B) <i>National Housing Assisted ¾%—</i>										
Cape.....	2,276,960	6,964,794	9,241,754	6,644,683	15,890	527	4,783	21,200	3,555	17,645
†Natal.....	23,324	1,819,086	1,842,410	1,500,992	2,937	33	367	3,337	20	3,317
Orange Free State.....	170,544	63,375	233,919	174,571	135	215	28	378	114	264
Transvaal.....	1,363,945	3,142,958	4,506,903	4,085,389	9,863	679	1,390	11,932	1,468	10,464
TOTAL.....	3,834,773	11,990,213	15,824,986	12,405,635	28,825	1,454	6,568	36,847	5,157	31,690
(C) <i>National Housing Assisted ¾%—</i>										
Cape.....	324,266	2,961,725	3,285,991	1,324,112	2,339	654	1,862	4,855	326	4,529
†Natal.....	105,443	623,397	728,840	278,259	168	61	7	236	91	145
Orange Free State.....	101,460	115,300	216,760	24,000	91	71	125	287	70	217
Transvaal.....	2,212,385	4,833,278	7,045,663	2,919,725	4,537	2,418	4,133	11,088	1,426	9,662
TOTAL.....	2,743,554	8,533,700	11,277,254	4,546,096	7,135	3,204	6,127	16,466	1,913	14,553
(D) <i>Housing of Aged Poor 1/- %—</i>										
Cape.....	77,599	40,721	118,320	85,588	368	2	62	432	208	224
†Natal.....	25,000	6,000	31,000	31,000	73	—	—	73	50	23
Orange Free State.....	54,405	—	54,405	43,825	77	10	4	91	91	—
Transvaal.....	98,600	1,000	99,600	34,800	21	2	25	48	38	10
TOTAL.....	255,604	47,721	303,325	195,213	539	14	91	644	387	257
TOTAL: (A), (B) (C) AND (D)..	16,335,776	21,879,975	38,215,751	26,246,394*	55,078	5,227	14,092	74,397	17,684	56,713

* Includes £4,347,683 re-issued out of repaid capital.

† Housing Schemes approved by the Administrator on the recommendation of the Natal Housing Board are not included.

and 871 were under construction in various parts of the Union (other than Natal) by the Commission, the position on the 30th June, 1947, was as set out in Table 7.

TABLE No. 7.

Area.	Dwellings under Construction.	Dwellings Completed.	Total.
Springs.....	13	43	56
Brakpan.....	29	53	82
Benoni.....	34	6	40
Boksburg.....	23	34	57
Germiston.....	68	155	223
Roodepoort.....	36	21	57
*Krugersdorp.....	63	43	106
Johannesburg.....	—	61	61
Nigel.....	—	35	35
Pretoria.....	48	77	125
<i>Cape.</i>			
Cape Town.....	171	365	536
Port Elizabeth.....	200	191	391
East London.....	25	147	172
Kimberley.....	16	—	16
TOTAL FOR ALL AREAS...	726	1,231	1,957

The following lists indicate the members of the various bodies mentioned as at 30th June, 1947 :—

Members of the National Housing Council.

- Dr. the Hon. Henry Gluckman, Minister of Health : *Chairman.*
Dr. G. W. Gale, Secretary for Health : *Deputy Chairman.*
Mr. W. Brinton, Chairman of the National Housing and Planning Commission.
Major J. C. Collings, Director of Housing.
Mr. E. L. Ellenberger, representing the National Housing and Planning Commission.
Mr. W. B. Barnard, M.E.C., representing the Transvaal Provincial Administration.
Mr. R. Truter, representing the Cape Provincial Administration.
Mr. W. J. Pretorius, M.E.C., representing the Orange Free State Provincial Administration.
Mr. M. B. Williams, representing the Municipal Association of the Cape.
Mr. R. Ellis Brown, representing the Municipal Association of Natal.
Col. L. W. Deane, representing the Municipal Association of the Orange Free State.
Mrs. A. J. E. Nel, representing the Municipal Association of the Transvaal.
Mrs. S. B. Broers, representing the Federale Vroueraad.
Mrs. Harold Jones, representing the National Council of Women of South Africa.
Mr. E. G. Pettit, representing Utility Companies.
Mr. C. W. T. Duminy, representing the Association of Divisional Councils of the Cape.
Dr. Gordon D. Laing, Medical Officer of Health.
Mr. H. M. Shaw.
Mr. E. Douglas Andrews.
Professor E. Batson, Sociologist.
Professor O. Wagner.
Mrs. Hannah Fichardt.
Mr. A. W. H. Rose.
Mr. F. B. Allen, M.P.
Acting Secretary : Mr. J. Sanders.

Members of the National Housing and Planning Commission.

- Mr. W. Brinton : *Chairman.*
Major J. C. Collings, Director of housing : *Deputy Chairman.*
Mr. M. G. Nicolson.
Mr. G. O. Owen.
Mr. H. C. Roberts.
Mr. E. L. Ellenberger.
Mr. N. L. Hanson.
Dr. T. Shadick Higgins.
Mrs. L. A. B. Reitz.
Mr. A. Schauder.
Capt. S. H. Kemp.
Secretary : Mr. N. M. Mc Intyre.

Members of the Executive Committee.

- Mr. W. Brinton : *Chairman.*
Major J. C. Collings : *Deputy Chairman.*
Mr. M. G. Nicolson.
Mr. N. L. Hanson.
Mr. H. C. Roberts (alternate to Mr. Hanson).
Secretary : Mr. N. M. Mc Intyre.

The Building Action Committee.

- Mr. Ivan L. Walker : *Chairman.*
The Members of the Executive Committee.
The Secretary for Health.
The Chairman of the Union Tender and Supplies Board.
The Secretary for Lands (when land purchases are under consideration).
The Secretary for Commerce and Industries (when purchase of materials is under consideration).
Secretary : Mr. J. Sanders.

SLUM ELIMINATION.

The Slums Act, No. 53 of 1934, was extended during the year to three additional centres, namely, the Peri Urban Areas Health Board, Pretoria (Proclamation No. 156 of 1946, dated 16th August, 1946), Ceres Municipality (Proclamation No. 264 of 1946, dated 8th October, 1946) and Harrismith Municipality (Proclamation No. 107 of 1946, dated 25th November, 1946). The number of centres at which the Act is now in operation total 55. Three further applications, one from the Transvaal, one from Natal and one from the Cape Province are under consideration.

During the year four appeals from Johannesburg involving thirteen premises, five from Benoni involving seven premises and one from Grahamstown involving one premises were lodged under Section 4 (10) of the Act against the declaration as slums. In all cases the slum declarations were confirmed by the Commission.

One application by Simonstown Municipality to acquire four slum properties by agreement or by expropriation was considered and approved by the Commission under delegated powers. Applications submitted by the City Council of Cape Town to acquire a number of slum properties are at present under consideration.

In view of the shortage of housing throughout the country local authorities have utilized the powers which they possess under the Slums Act very sparingly. In fact, generally speaking, such powers have only been exercised under very exceptional circumstances. The Department is in full agreement with this policy and considers that under the conditions at present prevailing slums should not be eliminated unless they constitute a very real danger to health and unless alternative and much better accommodation for the occupants can be assured.

RURAL AND PERI-URBAN SANITARY CONDITIONS.

Orange Free State.

During the year under review the Advisory Committee on Regional Planning of the Northern Orange Free State referred to in last year's report continued to exercise effective control over the regional developments taking place in the areas concerned. This Committee has since been replaced by the Natural Resources Development Council established under the Natural Resources Development Act No. 51 of 1947.

An appeal through the Transvaal Chamber of Mines to the responsible mining interests in the Orange Free State met with a ready response and the Department is confident that, as a result of the co-operation assured, the developments taking place will proceed with due regard to public health requirements.

The control exercised by the Department extends into the Transvaal and in this connection it may be mentioned that the provisions of section 130 of the Public Health

Act prohibiting the erection of dwellings on the back-to-back principle or of rooms without adequate ventilation were applied, in terms of Government Notice No. 354 of the 21st February, 1947, to the rural areas situate within the following magisterial districts:—

Bloemfontein, Winburg, Hoopstad, Ventersburg, Bothaville, Vredefort, Heilbron, Frankfort, Vrede, Christiana, Bloemhof, Schweizer Reneke, Wolmaransstad, Klerksdorp, Ventersdorp, Potchefstroom, Heidelberg and Standerton.

Steps are also being taken to effect certain amendments to the existing regulations relating to the rodent-proofing of buildings.

Finally, a Deputy Chief Health Officer of the Department, assisted by the necessary staff is already operating in the Orange Free State, with headquarters at Bloemfontein, and is actively engaged in ensuring that adequate control measures are instituted and carried out.

Transvaal.

Towards the end of the calendar year 1946 the ordinance providing for the establishment of the Peri-Urban Areas Health Board of the Transvaal was declared by the Transvaal Division of the Supreme Court to be *ultra vires* the powers of the Provincial Council. The Ordinance in question was, however, subsequently validated in terms of the Provincial Powers Extension Act No. 41 of 1947 so that the Board is now again able to exercise its powers and functions as a local authority under the Ordinance and under the Public Health Act in respect of the wide area under its jurisdiction.

During the year extensive uncontrolled squatting on town lands in Johannesburg gave rise to considerable anxiety on the part of the City Council and this Department because of the potentially grave menace to the public health arising from the insanitary conditions under which large numbers of Natives with their families were living. The Council succeeded in instituting a measure of control in respect of two of the affected areas known as Jabavu and Shanty Town. A large number of squatters who had originally squatted at Alexandra Township had, however, moved from there to municipal land in Orlando West. About 800 of these families and their shacks were moved by order of court back to Alexandra township where they proceeded to occupy two of the public squares. Here they were joined by hundreds of other squatter families. Primitive trading stores sprang up and numerous domestic animals appeared in the crowded camps. No sanitary facilities were available to the squatters apart from two or three open pits which had been constructed by the Natives themselves. There thus arose an immediate threat to the health not only of the squatters themselves but also of the other residents of Alexandra township.

The Local authority, the Health Committee of Alexandra Township, was obviously not in a position to deal adequately with the situation. Accordingly the Minister of Health, with the concurrence of the Administrator, was obliged to relieve the Health Committee forthwith of its powers, duties and obligations under the Public Health Act, 1919 in respect of the squatters within the limits of the public squares, to appoint the Magistrate, Johannesburg, to act as the local authority in place of the Health Committee and to ensure that the necessary measures to safeguard the public health were instituted, pending the application of other suitable measures of a more permanent character.

As the magistrate has no machinery for carrying out the functions of a local authority, this responsibility devolved on the Union Health Department. The Department's Assistant Health Officer stationed in Johannesburg was placed in immediate control of the work. One of the Rodent Officers was transferred to the area to organise and carry out the provision of sanitary facilities, a scavenging and refuse removal service and to combat fly breeding. The necessary transport and materials were obtained from the Government Garage, the Public Works

Department and the Department of Defence and a gang of labourers was recruited. In spite of the extremely crowded conditions and the lack of co-operation of the squatters in this respect the camp was kept remarkably clean.

Medical and nursing services were also provided with the assistance of the Department's health centre at Alexandra township. In the initial stages an intensive vaccination campaign against smallpox was undertaken and this resulted in the vast majority of the squatters and their families being vaccinated. An attempt was also made to inoculate as many as possible against typhoid fever in view of the primitive conditions under which they were living. A daily clinic, with a medical officer in attendance, was held in a shack in the camp and liaison was established with the squatters' leaders. In this way people needing medical attention were encouraged to come to the clinic. Nursing and midwifery services were provided in the shacks by two Native nurses who were brought up from the Training Centre at Durban specially for this purpose.

All the services which have been mentioned were maintained continuously throughout the period that the squatters were camped on those squares. The incidence of disease among the squatters was remarkably low. Although cases of both smallpox and typhoid fever occurred among the inhabitants of the township itself during this period there were only one case of smallpox and four cases of typhoid fever among the squatters. None of the cases was apparently infected in the camp nor was there any spread of these diseases within the camp.

The prompt action taken by the Department at Alexandra Township was eminently successful. Not only was the danger of infectious disease among the squatters themselves avoided but the potential danger to the health of the other inhabitants of Alexandra Township was entirely averted.

The number of squatters on the squares at Alexandra Township increased considerably during the next few weeks. When it was finally possible to remove them some 1,500 families were taken to the camp at Moroka, which is referred to later, about 200 families were taken to the transit camp under the control of the Native Affairs Department for final dispersal to their homes and others disappeared, many presumably returning to rooms in Alexandra Township itself.

In the meantime negotiations had taken place between the Government and the City Council of Johannesburg which resulted in the establishment of a "controlled squatting scheme" involving the provision of some 10,000 stands with essential social amenities and health, including sanitary, services and supervision at Moroka. This camp was prepared to provide for the squatters in the camp as Tobruk at Orlando West and those at Alexandra Township, it being agreed that the Moroka camp would only take those Natives and their dependants who were employed in the municipal area. The vast majority of the squatters proved to be employed in Johannesburg and were accordingly removed to Moroka. Thereafter the control of the squares from a public health point of view at Alexandra Township, reverted to the Alexandra Health Committee.

The agreement between the Government and the City Council in respect of the controlled squatting scheme at Moroka, in terms of which the Government has undertaken to subsidise the Council for a period of five years from the 28th April, 1947, at the rate of 10s. per occupied stand per month (or 1s. 3d. per unoccupied stand in respect of which services have been made available) is intended to meet the position until such time as the Council succeeds in providing the necessary housing accommodation for the squatters and their dependants.

Natal.

The Local Health Commission established by the Provincial Council continues to fulfil an essential rôle in instituting measures to ensure that insanitary conditions arising from "irregular urbanisation", to use a term coined by the Urbanised Areas Administration Committee in its report (U.G. No. 8 of 1940), are remedied before they constitute an imminent danger to the public health. It has, during the year under review, been instrumental in the creation of the Public Health Area of Howick West as well as several new health committees including the following :—

Newsel-Umhloti Beach.	Port Edward.
Nongoma.	Shelly Beach.

Cape.

The influx of Natives into the developing industrial areas of the Cape Province in order to meet the demand for labour has continued and has remained a constant cause for concern from a public health point of view. Amongst other areas, the conditions which have arisen at Daljosaphat near Paarl have caused special concern. Here the obvious solution is the carrying out of a sub-economic housing scheme and negotiations to this end have been entered into between the Town Council of Paarl and the National Housing and Planning Commission.

Railway Reserves.

As in the case of the ordinance providing for the establishment of Peri-Urban Areas Health Board of the Transvaal, section 125 (c) of the Local Government Ordinance No. 17 of 1939 (Transvaal), which purported to permit the Administrator to appoint members of health committees, was declared by the Supreme Court in April, 1947, to be *ultra vires* the powers of a provincial council under the South Africa Act. This ruling affected vitally local authorities, comprising Railway Officers nominated by the Administrators of the Cape and Transvaal Provinces, established in respect of railway reserves and contiguous areas for the purpose of carrying out the functions of local government (including those relating to public health) but the enactment of the Provincial Powers Extension Act No. 41 of 1947 shortly afterwards enabled the local authorities concerned to continue to exercise their powers and functions.

During the year a health committee consisting of Railway Officers appointed by the Administrator was established in respect of Waterval Boven with jurisdiction over the Railway Reserve and certain contiguous areas. This committee is assisted by an advisory committee on which elected members of the local population, together with a nominated representative of Non-European interests, are serving.

In the Cape Province, the Village Management Board of Alicedale was reconstituted and now consists of Railway Officers appointed by the Administrator, with an extended area of jurisdiction. As in the case of Waverval Boven the reconstituted Board is assisted by an advisory committee representative of the public. The Village Management Board of Loganda (now Touws River) was similarly reconstituted and is likewise assisted by a local advisory committee.

At Graafwater, a local area committee has been established under the aegis of the Divisional Council of Clanwilliam with a view to the institution of more effective control from a public health point of view.

Proposals relating to the establishment of suitable control in respect of the railway reserves and contiguous areas at Cookhouse, Rosmead and Klipplaat have not yet been brought to fruition.

V.—PERSONAL PREVENTIVE HEALTH SERVICES.

(1) THE HEALTH CENTRES SERVICE.

The training of personnel in the techniques of the practice of social medicine must necessarily be the primary consideration in this early stage of the development of the Health Centres Service. Thus while a number of new health centres have been established during the year the growth of the Training Scheme itself has been the most notable feature of the service.

The Training Scheme for Health Personnel continued to function in temporary premises attached to the Springfield Tuberculosis Hospital in Durban. It is hoped that in 1948 the Department's Institute of Hygiene and Social Medicine will be established at Clairwood. The Training Scheme will then be absorbed by this Institute.

The aims of the Training Scheme include :—

- (1) The training of personnel of the various classes required in the Health Centre Service, in the principles and techniques of the practice.
- (2) The provision of a Health Centre Service to a community—which will in fact provide the practising base for the Training Scheme, making available the necessary clinical material in its social setting.
- (3) Research work in the field of social medicine : including here—
 - (a) to quote Professor Ryle, "the study . . . of the broader natural history of man in disease (or health) ; of man as he continually reacts, emotionally and physically, not merely to the single noxious agent but to the multiple circumstances of his whole life and environment" ;
 - (b) the study of the interactions between individual, family and community health ;
 - (c) the study and development of techniques which will enable practitioners of social medicine to formulate diagnoses of health or ill-health on the basis of socio-medical etiology, and will enable them to formulate, having regard to all available socio-medical agencies, programmes of therapy, of disease prevention and health promotion and programmes for the rehabilitation of the sick and the injured.

With these aims in view the Training Scheme has been developed. It consists at present of the following divisions : Family Health, Nutrition, Epidemiology, Environmental Hygiene, Clinical Pathology, Oral Hygiene.

Within the Training Scheme are the following practising Health Centres : Polela (the rural unit), Newlands (peri-urban) and Springfield (urban).

The Training of Personnel.—Since the inception of the Training Scheme in December, 1945, the following personnel has passed through for training (Table 8).

For medical officers the course is six months, for nursing personnel six months and for health assistants at present one year. It is intended in 1948 to start 3-year courses for health assistants (Non-European). For some years however it will be necessary to continue the temporary one-year courses. It should be noted that the Non-European health assistant is accepted for training with a minimum qualification of the junior certificate. European women with a university degree in social science have been accepted for a training course lasting six months.

The training of personnel is carried out by means of systematic lectures and tutorial classes, work in the field and in the clinical sections at the Training Scheme Health Centres.

At these health centres "tutor" teams of medical officer, sister and health assistant have been established ; to these teams are attached trainees for their practical tuition and guidance in health centre methods.

The Work of the Divisions at the Training Scheme.—The divisions carry the main part of the systematic lecture courses for trainees. Specific activities of the division have been as follows :—

- (1) *Division of Family Health.*—An intensive study was made of the factors affecting the health of the family unit in an urban environment. A team of workers consisting of a medical officer, psychologist, nursing sisters and health assistants carried out these investigations working with a group of 45 families. As a result of these studies practical improvement have resulted in the techniques of health centre practice and in the techniques for training personnel.

The Family Health Division also conducted investigations into methods of dealing with problems of physical and mental development of pre-school children. A programme of "Mother and Child" care has been evolved which includes the organisation of mother and child sessions at a health centre and the training of all groups of personnel in this type of work. Simplified schedules have been devised for diagnosing development levels of infant growth—based upon the work of Gesell. A Native medical aid who has made a special study of the Bantu concepts of disease is attached to the division and has given notable assistance in its research and teaching activities.

- (2) *Division of Nutrition.*—This division has conducted investigations into local feeding habits, the incidence of malnutrition in the communities served by the health centres, the construction of family budgets which will enable families to improve the quality of their food purchases within their income limits. Special studies have been made of methods of feeding pre-school groups. The division has been responsible for the routine teaching in nutrition to all groups of trainees.

- (3) *Division of Clinical Pathology.*—This division has undertaken the teaching of physiology to health assistants, has trained some selected health assistants in clinical side-room work and has undertaken the side-room work for the health centres in the Training Scheme. This work has been done in consultation with the Department's Senior Pathologist in Durban. A special study was made of the incidence of anaemia in patients attending the Springfield Health Centre. This has revealed a high incidence of anaemia in the three racial groups concerned (Indian, Native and Coloured). An investigation was made into the incidence of helminth infection in persons attending this centre. It is hoped to publish the findings which may be summarised as follows :—

- The results of microscopic examination of faeces in the case of 399 Indians, 613 Natives and 415 Coloured were analysed. One stool only was considered in each patient. No concentration methods were used and findings with regard to protozoa was not included.
- The helminth infection was found to be high, the figures for Indians, Natives and Coloured being 68 per cent., 57 per cent. and 65 per cent. respectively.
- The number infected with *ascaris lumbricoides* and *trichuris trichiura* was very much higher than the number infested with other helminths.
- 38 per cent. of infested persons were infected with more than one helminth.

The other divisions carried out routine teaching functions and participated in the work of the practising centres. The Division of Oral Hygiene undertook a number of dental surveys.

A.—Health Centres in the Training Scheme.

(1) *Polela.*—The intensive family health service was maintained for 899 homes with a population of 6,281. The mean number of home visits paid by health assistants to each home during the year was 1,465. General curative clinics were conducted at Polela and Impendhle, attendances numbering 23,650. During the year the health centre had

to deal with a fairly extensive outbreak of typhus in the Polela and Impendhle districts. Health sessions for expectant mothers and for "Mothers and Babies" are held each week.

The Pre-School Centre was attended by 72 children with a mean attendance over the year of 63.4 per child. The children have a periodic health examination once a quarter and are vaccinated and immunised as a routine against whooping cough, diphtheria and typhoid. 67 Children had a tuberculin patch test; of these 32 were positive. Subsequent X-ray examination revealed active tuberculosis in six of these. A meal is given to the pre-school children at this health centre only. This is regarded as being partly of an experimental nature, with a view to ascertaining to what extent the nutrition of these children is benefited by the meal, while it also serves the purpose of demonstrating to the trainees the organisation of such a service. The meal consists of vegetables from the centre garden together with mealie-meal fortified with dried skimmed milk, soya meal and vitaminised oil.

Services to school children included routine health examinations of 870 children from 7 schools. The children are immunised and treatment is given when necessary. A high standard of cleanliness was maintained; no cases of scabies or impetigo were seen. The combined School Meal Service served 132,580 meals at a cost of 1.97d per meal. Vegetables for the meals were provided to a small extent from the centre garden. The lack of fencing still remains as an obstacle to the establishment of school vegetable gardens.

Control of Communicable Disease.—Despite the prevalence of typhus in the surrounding areas the intensive area again remained relatively free. Only two cases occurred in the intensive area of Polela and only four in that of Impendhle. The typhus outbreak was brought under control by the use of highly trained teams from Polela who made home to home visits and disinfected with D.D.T. The intensity of the work of the team is illustrated by the fact that 99 per cent. of the total number of huts was treated with D.D.T. and 97 per cent. of the people concerned were treated. Immunisation with anti-typhus vaccine was used in the early stages but its use was soon discontinued on advice received from the South African Institute of Medical Research.

Syphilis and tuberculosis remain the most formidable problems. A special investigation into the incidence of tuberculosis revealed a very high rate of infection.

During the year the centre investigated and assisted in the control of three outbreaks of typhoid at Mont Lasseur, Equilashe and Centecow.

Health Indices.—The birth-rate has been rising steadily since 1943 and in this year was 43.59 per 1,000 population. 71 per cent. of the mothers had skilled care at the confinement—a proportion higher than in any previous year but which must be increased. It is hoped to provide additional midwifery services next year. The still-birth rate was 55 per 1,000 total births and neo-natal mortality 58 per 1,000 live births. The crude death rate of the total area was 21 per 1,000 population. The death rates in the "intensive area" over the past five years have been as follows :—

	38.33
1942.....	20.90
1943.....	18.07
1944.....	15.55
1945.....	13.11
1946.....	

The infantile mortality rate was the lowest yet recorded viz. 155.04 per 1,000 live births. During the last five years the infantile mortality rates have been as follows :—

1942.....	275
1943.....	250
1944.....	190
1945.....	210
1946.....	155

(2) *Springfield.*—This centre is divided into three sections: Coloured, Indian and Native so that the trainees may do their training as far as possible among persons of their own race. The findings of health assistants in the homes are correlated with the clinical findings at the health centre. The team under the leadership of the medical officer makes the socio-medical diagnosis and the plans for the care of the family and its individual members are then made. Some measures may be implemented by the health centre itself, others may be beyond the scope of the health centre and the help of the necessary outside agencies must be invoked, e.g. a hospital, the Social Welfare Department, the municipality, etc., according to the type of service required.

The number of families and persons dealt with in the “intensive area” was:—

	Indians.	Coloured.	Natives.	Total.
Families.....	340	256	653	1,249
Persons.....	2,065	1,414	2,235	5,714

This number of families and persons was selected having regard to the needs of trainees. Thus, it is considered that a health assistant can be adequately trained on a basis of some twenty (20) families, whereas in a centre in the field, depending of course upon the density of the population, he might care for 100 to 120 families. New groups of families were added to the intensive area as new trainees came to the Training Scheme and experiments were made to determine the optimum number of families per trainee.

The health assistants made surveys of the home conditions including the physical and social environmental conditions. They persuaded the members of the family to attend at the centre for periodical health examinations. The periodicity aimed at is: adults, annually; children of school age, twice a year; children of pre-school age, quarterly; and infants, monthly. Special sessions are held for expectant mothers, mother and babies and for pre-school children. Evening sessions are available for those unable to attend during working hours. As far as possible persons attend by appointment and latterly arrangements for “family consultations” have been made. At these consultations all the members of this family are invited to attend for joint consideration of “family health problems”. For the most part the persons seen at the centre are from the intensive area but a number of “non-intensive” patients also attend for whom a general out-patient service is provided. A dental health examination is a normal part of the total health examination and when necessary the dentist undertakes fillings, scalings and extractions. An attempt is made in every case to take into account the somatic and psychological factors affecting the health of the individual and the family.

A “records” department of the Training Scheme has been established which it is hoped will develop into a Division of Biometrics. In this department selected health assistants are being trained to keep health centre records. This department has kept a close record of the activities of the Training Scheme and its constituent health centres. Births, deaths and movements into and out of the intensive areas were recorded. The movement records are revealing. (For the year ending June 30th, 1947):—

	Indians.	Coloured.	Natives.
Population.....	2,065	1,414	2,235
Inward Movement....	51	74	335
Outward Movement....	35	77	455
Total Movement.....	86	151	840

They show that the Indian and Coloured communities are relatively stable, but that the Natives are in a state of constant movement. This is due primarily to the fact that this part of Durban is not one in which Natives may legally reside. In one small survey the rate of Native movement was found to be 3 per cent. per week. It is interesting to note that the total population in the area

varies very little, the number of habitations remains practically constant and all available living space is fully or more than fully occupied.

The social conditions that have been found can be closely correlated with this high degree of mobility. A family which has no roots has no real interest in its dwelling places. It has no care for the maintenance of the building, no interest in the sanitary arrangements, no incentive to establish a garden. Slum conditions, insanitation, high rentals, black markets, loose morals and juvenile delinquency are natural concomitants of these conditions. The Natives here do not really constitute a community but merely a collection of people—coming and going.

Surveys of literacy standards brought out the interesting fact that the higher the scholastic standard reached the greater was the co-operation with the health centre; those who reached higher school standards attended more readily for health examinations. This tends to indicate that when health centre techniques come to be available for our more highly educated European groups the response may be expected to be correspondingly encouraging.

An analysis of attendances for periodic health examination shows the following distribution (Table 9).

The attendances at the Springfield Health Centre were as follows:—

	Non-Intensive.		Total.
Number of persons seen (all races).....	4,085	1,615	5,700
Total attendances.....	46,301	4,014	50,315
Mean attendances per person.....	11.3	2.5	8.8

The results of tuberculin “patch” testing were as follows:—

Percentage showing Positive Tests.

Age Group.	Born before 1909.	1910-1929.	1930-1939.	1940-1944.	1945.	1946.	1947.	Total.
Indians.....	71	53	30	15	21	9	—	Per cent. 37
Natives.....	78	76	69	44	37	19	41	60
Coloureds.....	87	78	49	33	38	18	—	54

The results of Wassermann tests were as follows:—

	Per Cent.
Indians: percentage positive.....	7
Natives: percentage positive.....	30
Coloureds: percentage positive.....	12

Analysis of other morbidity states have not yet been made. It must suffice here to record that malnutrition is a preponderant finding, worm infestations as reported above are very common, and in general the community has a high degree of morbidity, few persons being seen who can be called healthy.

Close contact is maintained with the Department's tuberculosis hospital at Springfield and the staff of the Tuberculosis Division have assisted in the training of the personnel at the Training Scheme.

There has been most satisfactory liaison with the Municipal Health Department. Health activities in the areas served by the health centres have been discussed by the City Medical Officer of Health and the Medical Officer in Charge of the Training Scheme, and agreed measures adopted. Representatives of the Municipal Health Department and the Training Scheme met once every fortnight to discuss common problems.

Considerable assistance has been received from a large number of voluntary agencies engaged in social service

work in Durban and contact is maintained with these bodies and with the local representative of the Union Department of Social Welfare.

(3) *Newlands*.—This health centre is conducted in premises very kindly lent to the Department by the Friends of the Sick Association. The premises, however, are very inadequate for our purpose and steps are being taken to erect new buildings. Newlands is on the borders of Durban some seven miles from the centre of the city. The population is predominantly Native and Indian, and the conditions of housing and sanitation are extremely bad. There are 260 families in the intensive area comprising 399 Indian persons and 1,150 Natives. There are few schools and 30 per cent. of the Natives of schoolgoing age are not in school. The corresponding figure for Indians is 40 per cent. The people are engaged for the most part in unskilled labour in Durban, although there are a few skilled workmen and also a number of vegetable gardeners who work their own properties. The Indian birth rate during the year was 45 per 1,000 of the population and the Native 43. No other correct vital statistics have been obtained as yet.

The health centre has carried out general out-patient services and immunisations and a start has been made with ante-natal and child welfare services. Attendances at the health centre numbered 4,083 of whom 898 were from the intensive area and 3,185 from the non-intensive area.

B.—Other Health Centres.

A start has been made with other health centres in various parts of the country. In accordance with the policy governing the establishment of health centres these have been placed among the needy groups in the population. The stages of development of these centres varies greatly, some are still in their early stages of growth and provide simple general out-patient services together with simple preventive measures, e.g. immunisations. In others development has progressed to the point where in addition, ante-natal services and child welfare services have been established. In some, where the need exists, district midwifery services are being conducted. In a number of centres "intensive areas" have been started, systematic home visiting and systematic periodical health examinations have been introduced and will be followed in due course by the introduction of further techniques required for the practice of medicine in terms of our modern concepts. The general aim has been to provide sorely needed medical and nursing services for communities where these have hitherto been lacking, the first steps having been to provide the necessary curative and simple preventive services and, as personnel resources accrue, to expand and introduce other services so that in due course social medicine will be practised at all health centres.

(1) *Grassy Park*.—This centre started its activities in December, 1945. Grassy Park is situated on the Cape Flats and has a predominantly Coloured population numbering 5,145 in a total of 6,041. The area is within the local government jurisdiction of the Cape Divisional Council; the health centre building is the property of the Council and was formerly used as a clinic. The Council, the Medical Officer of Health and his staff, have co-operated very fully with the health centre. Considerable assistance has been received from other government departments and other local voluntary and charitable bodies including the C.A.F.D.A. (The Cape Flats Distress Association).

An "intensive area" of 150 Coloured families (consisting of 900 persons) has been established; services were rendered during the year to members of 1,200 families in all. During the 18 months of its existence medical assistance has been given to over 4,000 persons out of the total population of 6,000. For the most part people attending the centre have come because of illness but there is a growing number of attendances for health examination. Thorough investigation of socio-medical factors precedes the making of the diagnoses, and preventive and therapeutic measures are planned and executed in the light of the knowledge so gained.

As the proportion of trained to untrained personnel at the health centre grows, it will become possible to extend the scope of the services and substitute for the general out-patient service which is still largely carried on—social medical practice.

The health centre is open every day of the week, on Saturdays and Sundays there are morning sessions only. There are special sessions for expectant mothers and for "mothers and babies".

Attendances at the health centre during the year numbered 15,226 including 2,694 attendances for dental examination and treatment.

Intensive studies of the socio-economic conditions of the people have been made which have enabled the health centre staff to stimulate the establishment of services for the community beyond those for which the health centre itself can accept executive responsibility. In a variety of ways the health centre has carried out health education activities and, whilst it is difficult over a short period to assess the effects of this work, there can be little doubt that considerable benefits have accrued to the community.

(2) *Knysna*.—The health centre at Knysna serves a community of Europeans and Non-Europeans. The European population at the 1946 census was 8,656 and Non-Europeans numbered 11,316. At this health centre the medical officer in charge is also the district surgeon and there is complete integration of the health centre work with that of the district surgeon service.

See Table 10 hereunder for vital statistics which are available in respect of this area.

The figures given in Table 10 are not corrected for inward and outward transfers. They are merely an indication of trends and are far less accurate than is suggested by the second decimal place to which they were calculated. Also, the numbers involved being small, chance errors will be large.

The most disturbing figures are the increased number of deaths due to pneumonia and bronchitis and due to tuberculosis, especially among the Non-European population. It is possible that this is associated with the marked food scarcity which existed during the latter part of 1946.

There are 693 forest labourers in this area and the Forestry Department is engaged in building a number of houses for these people. Generally speaking, conditions of environmental health are unsatisfactory in the area as a whole.

The health centre maintains a general out-patients' service and, in addition, conducts ante-natal and "mothers and babies" clinics. Immunisations are carried out, special venereal disease sessions are held and a dental service is maintained, the assistance of a part-time dental practitioner being obtained. In addition health examinations are made, and the number of the latter is steadily growing.

In respect of the district surgeon's work the conventional services are carried out together with district tours, and "mothers and babies" clinics are conducted at two peripheral points in the district.

During the year there were 14,712 attendances at the health centre. Sick nursing and midwifery visits numbered 2,858. Doctors' domiciliary calls numbered 542. On district surgeon tours approximately 3,250 persons were attended to and during the year over 2,000 immunisations were done.

Little progress has been made with the "family welfare service" due to shortage of staff. The number of European families in the health assistants' areas numbered 221, Non-European families 264, the number of persons concerned being respectively 1,134 and 1,685.

The activities of the health centre have been greatly assisted by the co-operation of the magistrate, the police, the social welfare officer, the Department of Forestry, the municipality and the divisional council.

(3) *Cradock*.—The Cradock Health Centre opened on the 1st January, 1947, in the old municipal clinic building which is conveniently situated in the centre of the location. Services are provided for a Non-European community of 4,500 Natives and 3,000 Coloured people. District nursing and midwifery services are undertaken and, to a small extent, domiciliary medical services.

An intensive area of 80 Native homes has been established having a population of 371 persons. In addition to conducting a general out-patient service certain special sessions are held at the health centre viz.: sessions for venereal diseases (attendances, 1,859); ante-natal sessions (attendances, 739); "mothers and babies" sessions (attendances, 310). Wassermanns have been taken as a routine in ante-natal patients and the positive Wassermann rate was found to be 19·8 per cent. Immunisations against enteric, diphtheria and whooping cough have been undertaken.

The most important event during the health year in this area was a mass radiographic survey undertaken by the Department's Division of Tuberculosis. The plant was erected in the health centre and as a result of systematic canvass of the community, the whole of the Non-European population was X-rayed. Cases of tuberculosis and of other types of diseases were discovered. The value of this type of examination can hardly be overestimated. The radiographic survey has provided the health centre with valuable information regarding the incidence of pulmonary tuberculosis in this community and, in addition, has revealed the incidence of various other chest diseases detectable by the X-ray. The rate of Native pulmonary tuberculosis was found to be 807 per 100,000 of the population.

Health education has been carried out by the health centre by means of lecture-demonstrations and in various other ways.

The co-operation of a number of agencies has been in no small measure responsible for the progress made by the health centre. In this connection there should be mentioned: The Union Department of Social Welfare, the local authority, the South African Red Cross Society and the local hospital authorities.

(4) *Bushbuckridge*.—At this health centre in the Eastern Transvaal general out-patient services are conducted both at Bushbuckridge, the neighbouring village of Arthurs Seat and at Rolle and Mpisane. Immunisation services are conducted and a considerable part of the activities of the health centre consists of measures of health education. Particular emphasis has been laid upon the establishment in the area of fruit and vegetable gardens. In co-operation with the Education Department all schools in the area have been systematically visited, lectures have been given on health matters and attempts have been made to establish model fruit orchards at the schools.

During the year the number of patients receiving attention was as follows:—

	<i>Patients.</i>	<i>Attendances.</i>
Bushbuckridge.....	1,791	4,271
Rolle and Mpisane.....	658	1,288
Arthurs Seat.....	1,036	1,577
TOTAL.....	3,485	7,136

(5) *White River*.—This Centre was established on the 1st February, 1947. Out-patient services, immunisations and health education sessions have been conducted at the Swedish Mission in White River, Plaston and Mtimba in the Native reserve, and also at Gutshwa. There were 3,379 attendances at these sessions and a considerable incidence of malaria, syphilis and bilharzia was noted. Malnutrition was very prevalent.

(6) *Lady Selbourne*.—The Lady Selborne Health Centre situated just outside Pretoria in the municipality of Hercules began its activities on the 1st July, 1946, in premises rented from the Anglican Mission. An intensive area has been established of 230 houses in which are living 579 families consisting of 2,643 individuals. The total population of Lady Selborne is estimated at 30,000. It is one of the few urban areas in the Union where Natives may own immovable property. Consequently, there is a strong demand for houses here; land values and rentals are very high. The ruling rental being £1. 10s. 0d. per month per family for the use of one or two rooms occupied—there being an average of 11 persons per house.

Various services are being conducted by the health centre including a general out-patient service. 12,690 individuals attended; the total attendances being 43,173. "Mothers and babies" sessions are held once a week, and there were 1,575 attendances. Ante-natal sessions are also held weekly (attendances, 1,051). The children of two nursery schools in the area were regularly examined and were, immunised against enteric, diphtheria and whooping cough. In addition, by arrangement with the Education Department, 3,600 children attending five schools in the area were examined and immunised. General immunisation services have included 6,378 vaccinations against Smallpox and 4,301 immunisations against diphtheria and enteric. A small district nursing and domiciliary medical service is maintained. The number of such cases visited during the year was 273.

(7) *Tongaat*.—This centre was opened in July, 1946, and has received considerable support and assistance from the Tongaat Sugar Co., and the Tongaat Town Board, which latter has provided premises for the health centre.

The health centre has confined its activities to Non-Europeans. The Non-European community consists of Indians and Natives. The services conducted including general out-patient services, ante-natal sessions, "mothers and babies" sessions, examinations of school children, immunisations and general health education. In addition, a start has now been made with district nursing and midwifery services. No domiciliary medical services have been conducted.

An intensive area of 99 Indian homes and 228 Native homes has been established. The populations concerned being, respectively, 595 and 1,278. Attendances for the out-patient services during the year have been as follows: 3,599 Indian, 4,333 Native (total 7,932). Vaccinations numbered 1,926 and other immunisations, 1,831. Ante-natal patients numbered: 65 Indian and 145 Native, and new cases at the "mothers and babies" sessions were: 129 Indian and 278 Native. Total attendances at this session were 1,399.

In addition to the assistance received from the Tongaat Sugar Co., and the Town Board, mention should be made of the help given by the Child Welfare Society.

(8) Health centres have also been established at Grahamstown, Walmer, Fort Beaufort, Geilima, Alexandra, Evaton and Thaba 'Nehu. Details regarding the activities at these centres will be provided in the next annual report.

On 30th June, 1947, the Health Centres Advisory Committee consisted of the following:—

Mr. N. A. G. Reeler (Under-Secretary): *Chairman*.
 Dr. C. J. Albertyn.
 Dr. D. Landau.
 Dr. S. L. Kark.

TABLE 8.—DISPOSAL OF STAFF.

Designation.	Number joined Service.	Acting Staff at Training Scheme and Training Scheme Health Centres.	Still in Training.	Posted to Centres.	Left the Service or transferred or Services terminated by Department.
Medical Officers.	64	12	12	27	13
Nursing Personnel :—					
European.....	26	2	8	6	10
Coloured.....	3	—	1	2	—
Native.....	49	7	18	13	11
Health Assistants :—					
European					
Female.....	14	7	5	—	2
Coloured male	21	2	9	3	7
Indian male...	26	3	15	1	7
Indian female	2	—	1	—	1
Native male..	110	9	56	28	17
Native female	22	3	7	2	10

(2) MATERNITY, CHILD WELFARE AND NURSING SERVICES.

(a) General.—The number of posts of supervisor of nursing and maternity services has been increased from two to four, but, as three posts remain unfilled, there are still only one supervisor and two inspectresses on the staff. Nevertheless considerably more inspections, investigations and supervisory visits were carried out during the past year than during previous years. This increase in the amount of work done may be ascribed, at least in part, to the fact that motor transport was used more freely than hitherto, thus enabling the staff to move more rapidly about the country than they could when travelling by train.

The following figures indicate the amount of work done, last years figures being given in brackets :—

Centres visited.....	320	(206)
Inspections :—		
Nursing Homes.....	153	(91)
Health Visitors.....	17	(5)
Registered Private European Midwives	195	(152)
Registered Private Non-European Midwives.....	14	(11)
Unqualified Private European Midwives.....	100	(72)
Unqualified Private Non-European Midwives.....	92	(64)
Nurses and midwives subsidised in terms of sections 13, 14 and 15 of Act No. 57 of 1935, as amended..	256	(168)
Meetings addressed.....	36	(49)
Persons interviewed.....	1,214	(929)
Services organised.....	63	(30)
Lectures given.....	6	(29)
Special investigations.....	70	(16)

During the year Bloemfontein local authority area was proclaimed a prescribed area in terms of section 39 (a) of the Medical, Dental and Pharmacy Act as amended by the Nursing Act of 1944. Only registered nurses may now act, for gain, as nurses in this area. Bloemfontein is the only area in the Union that has been prescribed in this way. The number of areas prescribed in terms of section 39 (b) of the above acts remains at five. In these areas, with certain exceptions, only registered midwives may practise for gain.

The regulations regarding persons practising midwifery were not applied to any additional rural local authority areas during the year.

TABLE 9.—ANALYSIS OF ATTENDANCES FOR PERIODIC HEALTH EXAMINATION.

	INDIANS.			COLOURED.			NATIVES.			ALL RACES.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
Gross Population for year ending 30th June, 1947 (including Deaths and Movements out).....	1,047	1,069	2,116	722	776	1,498	1,296	1,425	2,721	3,065	3,270	6,335
Gross number of persons seen at Health Centre (from Intensive Area).....	728	874	1,603	427	536	963	535	984	1,519	1,690	2,395	4,085
Of gross population, percentage seen at Health Centre	69·5%	81·7%	77·5%	55·2%	69·0%	64·2%	41·2%	68·9%	55·8%	55·1%	73·2%	64·5%
Number of persons who had at least one complete Periodic Health Examination (P.H.E.).....	309	397	706	250	361	611	298	478	776	857	1,236	2,093
Of gross number of persons seen at Health Centre (from Intensive Area), percentage who had at least one complete P.H.E.....	42·4%	45·4%	44·0%	58·5%	67·3%	63·4%	55·7%	48·5%	51·1%	50·7%	51·6%	51·2%
									Intensive.	Non-Intensive.	Combined.	
Gross number of persons seen (all racial groups, all age groups, at all sessions).....									4,085	1,615	5,700	
Gross attendances (all racial groups, all age groups, at all sessions).....									46,301	4,014	50,315	
Mean attendance per person.....									11·3	2·5	8·8	

TABLE 10.—KNYSNA MAGISTERIAL DISTRICT VITAL STATISTICS.

	EUROPEANS.		NON-EUROPEANS.	
	1945-46.	1946.	1945-46.	1946.
Population (1946 Census).....	—	8,656	—	11,316
Birth rate per 1,000 population.....	25·76	29·69	43·21	49·93
Death rate per 1,000 population (crude).....	7·62	7·01	17·05	20·76
Infantile mortality rate.....	53·81	27·23	128·83	120·35
Diseases of heart and circulatory system per 100,000.....	242·00	404·00	194·00	203·00
Pneumonia and bronchitis per 100,000.....	46·00	11·00	203·00	353·00
Tuberculosis—all forms per 100,000.....	34·65	34·69	450·69	512·54
Malnutrition (infantile pellagra, etc.) per 100,000.....	0·46	—	26	70·00
Infantile diarrhoea per 100,000.....	0·11	11	78	88·00
Carcinoma(and other forms of malignant growths) per 100,000.....	—	115	—	8
Mortality from tuberculosis as a percentage of deaths from all causes.....	4·55	1·61	26·42	20·41
Percentage of deaths in above categories which were medically certified.....	90·9	75·8	71·3	65·9

TABLE 11.—NURSING AND MATERNITY HOMES INSPECTED DURING THE YEARS ENDED 30TH JUNE, 1942, 1943, 1944, 1945, 1946 AND 1947 RESPECTIVELY.

Place.	INSPECTIONS—											
	By Officers of Local Authority.						By Departmental Officers.					
	1942.	1943.	1944.	1945.	1946.	1947.	1942.	1943.	1944.	1945.	1946.	1947.
Cape Province :—												
Cape Town.....	28	23	16	23	16	22	—	34	2	—	—	—
East London.....	6	6	11	9	5	6	—	3	6	—	—	—
Port Elizabeth.....	5	4	6	3	4	2	—	—	—	—	—	—
Elsewhere.....	1	—	1	1	1	—	47	38	42	18	28	39
Natal Province :—												
Durban.....	12	10	—	—	1	5	—	—	—	—	—	—
Pietermaritzburg.....	2	6	3	3	—	2	—	2	—	—	—	—
Elsewhere.....	—	11	—	—	—	1	16	19	10	2	4	3
Transvaal Province :—												
Johannesburg.....	6	33	28	15	33	31	—	—	—	—	—	—
Other Rand L.A.'s.....	12	7	7	9	5	6	6	3	—	—	—	—
Pretoria.....	3	5	6	5	4	4	3	6	6	1	1	—
Elsewhere.....	—	—	—	—	—	—	39	39	7	37	34	30
Orange Free State—												
Bloemfontein.....	—	—	—	—	—	—	3	3	1	—	—	2
Elsewhere.....	—	2	—	—	—	1	24	34	14	21	21	23
UNION.....	75	107	78	68	69	80	138	181	88	79	88	97

(b) *Nursing and Maternity Services subsidised in terms of Act No. 57 of 1935.*—Table 12 shows the number of nurses and midwives subsidised in terms of the various sections of Act No. 57 of 1935 as amended. At 30th June, 1947, 606 of the approved posts were filled, i.e. 33 more than at 30th June, 1946, but many posts still remained vacant.

Since the refund on the salaries of nurses and midwives has been increased from $\frac{1}{3}$ to $\frac{1}{2}$ a number of local bodies have established full-time services, in terms of section 14 (a), where previously the Department had had to subsidise private midwives in terms of section 14 (b). This is very satisfactory and it appears that as far as European and urban Non-European services are concerned it is only the shortage of personnel which prevents further expansion. An unfortunate result of having more posts than nurses is that nurses do not stay long in any centre and there is less continuity in the services than previously.

The greatest demand of the public is still for midwifery services. Because of this and of the shortage of doubly qualified nurses the majority of posts are filled by midwives.

(c) *Infant and Maternal Welfare.*—Infantile and maternal mortality rates for 1946 are not yet available. The rates for 1945 are shown in tables 13 to 17. The steady fall in all rates for Europeans, Indians and Coloureds was maintained

and each was the lowest on record for South Africa. The number of stillbirths in 1945 was 1,188 (1,240), i.e. 19·5 (19·84) per 1,000 total births or 19·9 (20·24) per 1,000 live births.

It is interesting to compare our rates with those of New Zealand for the same period. The New Zealand infantile mortality rate for Europeans was 27·99 and for Maoris 88·93. Their still-birth rate for Europeans was 22·84 and their maternal mortality rate for Europeans was 2·24. It will be noted that the European maternal mortality and stillbirth rates are lower in South Africa than in New Zealand. The Indian infantile mortality rate is less than that for Maoris, but our European and Coloured infantile mortality rates are still very much higher than the corresponding New Zealand European and Maoris rates.

Of the 2,399 deaths of European infants in South Africa more than half, i.e. 1,228 occurred before the infants were one month old. The main causes of death in infants were diarrhoea and enteritis which accounted for 459, premature births which caused 420, broncho pneumonia causing 412, congenital malformations 234, asphyxia during or after childbirth 154, congenital debility 145, and intercranial or spinal haemorrhage due to injury at birth 130. Many of these deaths could be prevented by improved diets for expectant mothers, improved midwifery services, breast feeding of infants and better infant hygiene.

TABLE 12.—DISTRICT NURSING SERVICE: NURSES, MIDWIVES, NON-EUROPEAN NURSING ASSISTANTS AS AT 30TH JUNE 1947, IN RESPECT OF WHOM SUBSIDIES OR PART-REFUND OF SALARIES ARE PAID, COMPARED WITH THE TOTALS AS AT 31ST DECEMBER, 1935.

RACE.	Part-refunds under Section 14 (a).		Subsidies under Section 14 (b).		Part-refunds under Section 15 (a).		Subsidies under Section 15 (b).		Part-refunds to Provincial Administrations under Section 13.	
	1935.	1947.	1935.	1947.	1935.	1947.	1935.	1947.	1935.	1947.
European.....	23	116	7	25	—	4	—	—	—	139
Native.....	2	69	—	—	11	109	3	56	—	16
Coloured.....	—	22	1	—	—	2	—	—	—	48
ALL RACES.....	25	207	8	25	11	115	3	56	—	203

TABLE 13.—EUROPEAN INFANTS: BIRTHS AND DEATHS UNDER ONE YEAR REGISTERED AND INFANTILE MORTALITY RATE, DEATH RATE PER 1,000 LIVE BIRTHS, 1919-1945.

Year.	Cape.			Natal.			Transvaal.			Orange Free State.			Union.		
	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.
1919.....	16,749	1,351	80·66	2,910	191	65·64	15,338	1,326	86·45	4,727	382	80·81	39,724	3,250	81·81
1920.....	18,425	1,654	89·77	3,256	235	72·17	16,768	1,576	93·99	4,996	448	89·67	43,445	3,913	90·07
1921.....	18,062	1,382	76·51	3,370	203	60·24	16,582	1,374	82·86	5,288	379	71·67	43,302	3,338	77·09
1922.....	18,248	1,294	70·91	3,294	180	54·64	16,370	1,292	78·92	4,920	357	72·56	42,832	3,123	72·91
1923.....	18,296	1,353	73·95	3,229	197	61·01	15,619	1,261	80·74	5,037	328	65·12	42,181	3,139	74·42
1924.....	18,730	1,296	69·19	3,410	273	80·06	15,287	1,171	76·60	4,919	382	77·66	42,346	3,122	73·73
1925.....	18,366	1,343	73·12	3,509	206	58·71	16,348	1,059	64·78	5,188	361	69·58	43,411	2,969	68·32
1926.....	18,675	1,196	64·04	3,588	189	52·68	16,304	1,186	72·74	5,309	273	51·42	43,876	2,844	64·83
1927.....	18,537	1,293	69·75	3,435	166	48·32	17,050	1,359	79·71	5,325	314	58·97	44,347	3,132	70·63
1928.....	18,032	1,240	68·77	3,514	184	52·36	17,949	1,370	76·33	5,318	365	68·63	44,813	3,159	70·49
1929.....	19,008	1,169	61·50	3,650	177	48·49	18,227	1,342	73·63	5,334	280	52·49	46,219	2,968	64·22
1930.....	19,468	1,332	68·37	3,641	159	43·65	19,108	1,386	72·54	5,317	300	56·42	47,534	3,177	66·63
1931.....	19,180	1,182	61·63	3,538	162	45·79	18,733	1,267	67·65	4,975	317	63·72	46,423	2,928	64·07
1932.....	18,284	1,205	65·90	3,373	204	60·48	18,376	1,402	76·30	4,911	271	55·18	44,944	3,082	68·57
1933.....	17,931	995	54·49	3,441	166	48·24	18,452	1,266	68·61	4,695	299	63·68	44,519	2,716	61·01
1934.....	17,642	1,022	57·93	3,310	157	47·43	19,327	1,279	66·18	4,599	270	58·71	44,878	2,728	60·79
1935.....	18,242	1,016	55·70	3,441	167	48·53	21,109	1,537	72·81	4,925	277	56·24	47,717	2,997	62·81
1936.....	18,162	980	53·96	3,606	189	52·41	22,192	1,454	65·52	4,670	249	53·32	48,630	2,872	59·06
1937.....	18,404	1,012	54·99	3,766	175	46·47	23,814	1,439	60·43	4,894	252	51·49	50,878	2,878	56·57
1938.....	18,727	962	51·37	3,886	193	49·67	24,568	1,322	53·81	4,884	214	43·82	52,065	2,691	51·69
1939.....	19,022	984	51·73	4,056	151	37·23	25,795	1,304	50·55	4,644	209	45·00	53,517	2,648	49·48
1940.....	19,091	872	45·68	4,218	224	53·11	26,383	1,431	54·24	4,747	198	41·71	54,439	2,725	50·06
1941.....	19,026	884	46·46	4,361	180	41·27	26,711	1,481	55·74	4,471	226	50·55	54,569	2,779	50·93
1942.....	19,422	958	49·38	4,445	202	45·44	27,615	1,298	47·00	4,661	212	45·48	56,143	2,670	47·52
1943.....	20,169	921	45·66	4,802	199	41·44	28,937	1,448	50·40	4,857	212	43·65	58,765	2,780	47·31
1944.....	20,540	836	40·70	5,057	181	35·79	30,682	1,386	45·17	4,974	202	40·61	61,253	2,605	42·53
1945.....	20,247	788	38·93	4,856	174	35·83	29,401	1,238	42·11	4,985	199	39·92	59,489	2,399	40·33

TABLE 14.—INFANTILE MORTALITY: ASIATICS AND MIXED. 1945.

Province.	ASIATICS.			MIXED AND OTHER COLOURED.		
	Live Births.	Infantile Deaths.	Rate per 1,000 Births.	Live Births.	Infantile Deaths.	Rate per 1,000 Births.
Cape.....	395	41	103·80	37,083	5,631	149·15
Natal.....	9,003	730	81·84	1,009	109	108·03
Transvaal.....	1,541	131	85·01	2,002	299	149·35
Orange Free State	—	—	—	351	68	193·73
UNION.....	109,39	902	82·46	40,445	6,107	151·00

TABLE 15.—MATERNAL MORTALITY: EUROPEANS.

Year.	Live Births Registered.	Deaths due to Puerperal Causes.				
		Number.		Rates per 1,000 Live Births.		
		Puerperal Sepsis.	Other Puerperal Causes.	Puerperal Sepsis.	Other Puerperal Causes.	Total Puerperal Mortality.
1926.....	43,876	88	112	2·06	2·50	4·56
1927.....	44,347	101	112	2·28	2·53	4·81
1928.....	44,809	102	121	2·28	2·70	4·98
1929.....	46,219	140	103	3·03	2·23	5·25
1930.....	47,536	119	131	2·50	2·76	5·26
1931.....	46,423	116	102	2·50	2·20	4·70
1932.....	44,944	126	113	2·80	2·51	5·31
1933.....	44,519	113	101	2·54	2·27	4·81
1934.....	44,878	121	148	2·69	3·30	5·99
1935.....	47,717	119	107	2·49	2·24	4·73
1936.....	48,630	116	132	2·39	2·71	5·10
1937.....	50,878	99	124	1·94	2·44	4·38
1938.....	52,065	78	114	1·50	2·19	3·69
1939.....	53,517	69	124	1·29	2·32	3·61
1940.....	54,439	67	116	1·23	2·13	3·36
1941.....	54,569	46	90	0·84	1·65	2·49
1942.....	56,143	60	99	1·07	1·76	2·83
1943.....	58,765	45	122	0·77	2·08	2·85
1944.....	61,253	42	93	0·68	1·52	2·20
1945.....	59,489	26	99	0·44	1·66	2·10

(3) DENTAL CARIES RESEARCH.

The Dental Health Officer has completed his experimental investigations on the effects of different diets and of fluorine on caries in white rats. Some interesting and important results were obtained.

In the first experimental series, groups of 25 rats were placed on different diets for 80 days in order to ascertain what effect these diets would have on their susceptibility to dental caries. It was found that, when rates were fed a balanced ration in which the mealie-meal was so finely ground that it would pass through a 60-mesh sieve, no caries developed in their molars. When the mealie-meal was coarsely ground and passed through a 20-mesh but not through a 30-mesh sieve, caries developed.

TABLE 16.—MATERNAL MORTALITY: ASIATICS AND MIXED UNION.

Year.	Live Births Registered.	Deaths due to Puerperal Causes.				
		Number.		Rates per 1,000 Live Births		
		Puerperal Sepsis.	Other Puerperal Causes.	Puerperal Sepsis.	Other Puerperal Causes.	Total Puerperal mortality
ASIATICS.						
1940.....	9,531	16	37	1·68	3·88	5·56
1941.....	9,841	16	44	1·63	4·47	6·10
1942.....	10,262	26	40	2·53	3·90	6·43
1943.....	10,893	26	40	2·39	3·67	6·06
1944.....	11,092	23	41	2·07	3·70	5·77
1945.....	10,939	13	44	1·19	4·02	5·21
MIXED AND OTHER COLOURED.						
1940.....	38,366	81	129	2·11	3·36	5·47
1941.....	38,412	88	121	2·29	3·15	5·44
1942.....	36,631	57	111	1·56	3·03	4·59
1943.....	37,697	64	128	1·70	3·40	5·10
1944.....	38,625	55	120	1·42	3·11	4·53
1945.....	40,445	38	134	0·94	3·31	4·25

Different carbohydrates in the form of sweets and sweet potatoes and also proteins were then added to the fine and coarse mealie-meal rations. It has been stated that carbohydrates in the form of sweets cause teeth to decay. It was found that when sweets were added to the finely-ground ration the rats developed caries, and when sweets were added to the coarsely-ground ration, this greatly accelerated the progress of decay caused by the coarsely-ground ration. From this it may be concluded that excessive eating of sweets is harmful to the teeth.

The results of the dental survey which were published in the Annual Report of 1944, showed that, in the southern coastal areas of the Cape, where sweet-potatoes form an important item of the diet of children, caries is rampant. When sweet-potatoes were added to the finely-ground mealie-meal ration, the rats did not develop caries, but when they were added to the coarse ration extensive caries resulted. Children living in the north-western areas of the Cape have the lowest caries incidence rate in South Africa. The principal item of their diet is meat. In the experiments with rats it was found that meat fed with the coarse mealie-meal ration did not affect the caries incidence significantly.

TABLE 17.—EUROPEAN DEATHS FROM PUERPERAL CAUSES BY AGE GROUPS.

CAUSES.	1944.								1945.							
	All Ages.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45 and Over.	All Ages.	15-19.	20-24.	25-29.	30-34.	35-39.	40-44.	45 and Over.
<i>Post Abortive Infection.</i>																
Spontaneous, Therapeutic or Unspecified Origin.....	10	—	1	3	5	1	—	—	6	—	1	—	3	—	1	1
Abortion induced for reasons other than Therapeutic.....	1	—	—	—	1	—	—	—	4	1	—	—	2	—	1	—
<i>Abortion without Mention of Septic Condition.</i>																
Spontaneous, Therapeutic or of Unspecified Origin.....	6	—	1	—	—	4	1	—	6	1	1	—	3	1	—	—
Abortion induced for reasons other than Therapeutic.....	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—
Ectopic gestation.....	10	—	—	3	5	2	—	—	6	—	—	—	3	2	1	—
<i>Haemorrhage and Diseases of Pregnancy.</i>																
Haemorrhage from Placenta Praevia	1	—	—	1	—	—	—	—	2	—	—	1	—	1	—	—
Haemorrhage from Premature separation of Placenta and other accidental haemorrhage (except Abortion).....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other and unspecified haemorrhage	3	—	—	—	2	1	—	—	5	1	1	—	1	2	—	—
Eclampsia.....	—	—	—	—	—	—	—	—	7	1	2	2	1	1	—	—
Albuminuria and Nephritis.....	14	1	5	2	2	4	—	—	3	—	—	1	—	2	—	—
Acute Yellow Atrophy of the Liver	1	—	—	—	1	—	—	—	2	1	—	1	—	—	—	—
Other Toxaemias.....	—	—	—	—	—	—	—	—	3	—	—	2	1	—	—	—
Other diseases and accidents.....	7	—	1	1	1	4	—	—	—	—	—	—	—	—	—	—
<i>Haemorrhage and Diseases of Childbirth and the Puerperium.</i>																
Haemorrhage from Placenta Praevia	—	—	—	—	—	—	—	—	3	—	—	—	1	—	2	—
Haemorrhage from Premature separation of Placenta.....	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—
Other haemorrhages during childbirth.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other haemorrhage after childbirth	13	—	1	2	5	4	1	—	21	—	7	3	2	5	4	—
General or local puerperal infection (including puerperal tetanus) with or without mention of Pyelitis...	24	1	5	6	6	5	1	—	8	—	2	1	—	2	2	1
Thrombo Phlebitis.....	2	—	—	—	2	—	—	—	1	—	—	1	—	—	—	—
Embolism and sudden death.....	5	—	—	3	1	—	1	—	7	—	—	3	2	2	—	—
Eclampsia.....	4	1	1	—	1	1	—	—	4	—	—	2	2	—	—	—
Albuminuria and Nephritis.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acute Yellow Atrophy of the Liver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Toxaemias.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other accidents.....	32	1	7	4	11	6	3	—	34	2	6	9	4	9	4	—
Other or unspecified diseases.....	2	—	—	—	2	—	—	—	1	—	1	—	—	—	—	—
TOTAL.....	135	4	22	25	45	32	7	—	125	7	21	26	27	27	15	2

In order to ascertain whether low and high proportions of fluorine in drinking water have an inhibitory effect on caries, 25 rats were fed a coarse-meal ration with 5 parts per million of fluorine in their drinking water, and another 25 rats were fed a coarse-meal ration with 100 parts per million fluorine in their drinking water. It was found that

5 parts per million of fluorine did not affect the incidence of caries significantly but the 100 parts per million of fluorine greatly reduced the process of decay.

The following table gives the results of these experiments with different diets and fluorine on caries in rates :—

Diets.	No. of rats with caries.	No. of upper molars with caries.	No. of lower molars with caries.	Total No. of all molars with caries.	Caries Index.*
Fine meal ration.....	—	—	—	—	—
Coarse meal ration.....	19	—	76	76	5.7
Fine meal ration with sweets.....	10	—	20	20	1.2
Coarse meal ration with sweets.....	25	—	116	116	9.6
Fine meal ration with sweet-potatoes.....	—	—	—	—	—
Coarse meal ration with sweet-potatoes.....	22	8	84	92	11.0
Coarse meal ration with meat.....	22	5	57	62	4.4
Coarse meal ration with 5 p.p.m. fluorine.....	24	5	77	77	4.3
Coarse meal ration with 100 p.p.m. fluorine.....	2	5	2	2	0.1

* The extent of the decay was assessed as follows :—

Small cavity, 1 point ; large cavity, 2 points ; Half of crown decayed, 3 points ; more than half of crown decayed, 4 points ; total crown decayed, 5 points ; total crown decayed with caries extending into the roots, 6 points.

The caries index of each group was calculated by adding the number of points of each cavity in the group and then dividing this number by twenty-five, the number of rats in each group.

In the second experimental series, female rats were fed three different diets. The first was high in carbohydrate and low in protein ; the second was low in carbohydrate and high in protein, while the third was high in fluorine. In all cases the mealie-meal was coarsely-ground. These diets were fed during gestation and lactation to ascertain

what effect these variations would have on the caries incidence in their offspring. It was found that the rats, whose mothers were fed a high-carbohydrate and low-protein diet during gestation and lactation, developed nearly three times as much caries as the rats whose mothers were placed on a low-carbohydrate and high-protein diet during this period. When the female rats were given 100 p.p.m. of fluorine in the drinking water during gestation and lactation, their offspring developed considerably less caries than the rats whose mothers received no fluorine. The following table shows the results of these experiments :—

Diet during gestation and lactation.	No. of rats with caries.	No. of upper molars with caries.	No. of lower molars with caries.	Total No. of all molars with caries.	Caries Index.
Coarse meal ration (controls).....	19	—	76	76	5·7
High carbohydrate low-protein.....	25	—	101	101	8·8
Low-carbohydrate high-protein.....	20	—	38	38	3·0
Coarse meal ration plus 100 p.p.m. fluorine.....	20	—	53	53	2·8

In the third experimental series, highly caries-susceptible in-bred female rats were fed high and low carbo-hydrate and protein diets and fluorine during gestation and lactation to ascertain what effect heredity and these diets would have on the incidence of caries in their offspring. From the dental survey referred to above it had been found that, in areas where people intermarry, their children suffer extensively from caries. It must be pointed out, however that in these areas the protein intake is low and the fluorine content of the drinking water is usually below 1 p.p.m. or fluorine may be entirely absent. Heredity in their case therefore is presumably not the sole factor. In the experiments the rats, whose mothers were inbred, developed nearly twice as much caries as the rats whose mothers were not inbred. The rats, whose inbred mothers were fed on a high-carbohydrate low-protein diet during gestation and lactation, developed caries when fed on a fine-meal ration with sweets for 80 days. A few rats, whose mothers were fed the same high-carbohydrate

low-protein diet during gestation and lactation, developed small pit cavities when fed the fine-meal ration with sweet-potatoes. When the inbred mothers were fed a high-carbohydrate, low-protein diet during gestation and lactation their offspring developed extensive caries, when fed the coarse-meal ration for 80 days. On the other hand those rats, whose mothers were fed on a low-carbohydrate high-protein diet during gestation and lactation, developed considerably less caries when fed on the coarse-meal ration. When the mothers were fed a high-carbohydrate low-protein diet, and 100 p.p.m. of fluorine in the drinking water, their offspring also developed less caries in spite of being fed on the same coarse-meal ration. The lowest caries incidence rate with the coarse-meal ration was found among rats whose inbred mothers were fed a low-carbohydrate high-protein diet with 100 p.p.m. fluorine in the drinking water during gestation and lactation. The offspring in these latter groups received no fluorine after they were weaned. The following table gives the results of these experiments :—

Diet of mothers during gestation and lactation.	Diet of off-spring for 80 days.	No. of rats with caries.	No. of upper molars with caries.	No. of lower molars with caries.	Total No. of all molars with caries.	Caries Index.
Coarse-meal ration (not inbred controls)	Coarse meal ration.....	19	—	76	76	5·7
Coarse meal ration.....	Coarse meal ration.....	25	—	88	88	9·0
High-carbohydrate low-protein....	Fine meal ration with sweets..	15	—	40	40	2·4
High-carbohydrate low-protein....	Fine meal ration with sweetpotatoes	8	—	22	22	1·0
High-carbohydrate low-protein....	Coarse meal ration.....	24	8	88	96	11·0
Low-carbohydrate high-protein....	Coarse meal ration.....	20	—	52	52	3·4
High-carbohydrate low-protein plus 100 p.p.m. F.	Coarse meal ration.....	19	—	56	56	3·9
Low-carbohydrate high-protein plus 100 p.p.m. F.	Coarse meal ration.....	15	—	21	21	1·3

From the dental surveys and the results of the experimental investigations described above, it appears that carbohydrates, protein and fluorine play an important role in dental caries. Carbohydrates, especially sweets, not only initiate decay but greatly accelerate the process once it has started. A high protein intake by the mother during the child's pre-natal life or by the child itself after birth and up to about 8 years of age, the period when calcification is going on, makes the child's teeth more resistant to decay. The fluorine intake during the prenatal-period and the first eight years of life is also important in this connection. If the pregnant mother has a high fluorine intake this will promote calcification of the teeth of the unborn child, while during the first eight years of life a relatively high fluorine intake by the child (not more than 1·5 p.p.m. in drinking water) promotes calcification. The optimum conditions for the development of well-calcified and caries-resistant teeth are when the pregnant mother has a high protein and fluorine containing diet and when the young child, during the period of calcification of its teeth, has a high protein diet and uses drinking water which contains a slight excess of fluorine, which, however, should not exceed 1·5 p.p.m.

In the light of the foregoing experiments it would appear that the following measures for the prevention and control of dental caries are advisable :—

- (1) The avoidance of an excessive consumption of carbohydrates, especially sweets, cakes, etc. This will reduce the acid-producing organisms in the mouth.

- (2) Regular brushing after meals.
- (3) The consumption of a high protein diet by mothers during pregnancy and lactation and by children especially during calcification of the teeth, i.e. from birth to eight years.
- (4) The taking of non-toxic quantities of fluorine by mothers during pregnancy and lactation and by children during calcification of the teeth. The amount of fluorine in drinking water given to children should not exceed 1·5 p.p.m.
- (5) The paying of regular visits to the dentist to have decayed teeth filled and to prevent caries from spreading.

(4) CONTROL OF INFECTIOUS DISEASES.

(a) Diseases from outside the Union.

Section 3 of the Public Health Act (No. 36 of 1919) defines the statutory functions of the Department of Health as they were then envisaged. The first function mentioned in this section is "to prevent or guard against the introduction of infectious disease into the Union from outside". The Union Government is a signatory to both the International Sanitary Convention and the International Sanitary Convention for Aerial Navigation and is also a member of the recently formed World Health Organisation. It is in terms of legislation passed in accordance with the two conventions mentioned that steps are taken by the Union Department of Health to prevent the introduction

of infectious disease at both the various seaports of the Union and at the sanitary airports. Brief accounts of the measures which are taken in this connection are given under the appropriate headings in this chapter.

Among the chief functions of the World Health Organisation will be to act as the directing and co-ordinating authority on international health work and to arrange international health legislation. It is therefore not inappropriate to make a brief reference to this important organisation at this stage.

World Health Organisation.

The most notable international achievement in the field of health during the post-war period is the establishment of the World Health Organisation. Arising out of suggestions made at the San Francisco Conference an International Health Conference was convened by the Economic and Social Council of the United Nations. This conference was held in New York in June and July of 1946 and was attended by delegates from all over the world. The representatives of no fewer than 61 nations were signatories to the Convention which emerged from this conference and which created the World Health Organisation. The delegate of the Union of South Africa was Dr. H. S. Gear, Deputy Chief Health Officer in the Union Health Department stationed at Cape Town. Soon after his return Dr. Gear published a brief article describing the conference in the South African Medical Journal and it is felt that his first-hand account of an event which will undoubtedly make history will be more interesting reading than any official description containing only second hand information on the matter. Dr. Gear's article is therefore published as an annexure to this report with the kind permission of the editor of the South African Medical Journal.

It may be mentioned that it is expected that the First World Health Assembly will meet during the first half of 1948.

Port Health Administration.

During the year the Department continued to carry out the important function of protecting the Union population against the introduction of epidemic diseases from ships and aircraft calling at Union ports and airports. From a comparison of the figures in previous annual reports with those given in Table below it will be noted that the total number of vessels dealt with is 3,772. This is somewhat lower than the pre-war total of over 5,000 per annum. During the year under review the number of ships calling at Cape Town and Durban increased by nearly 25 per cent. as compared with the previous year whereas the number calling at Port Elizabeth and East London increased more rapidly, 72 per cent. and 119 per cent. respectively. At the two latter ports the figures very closely approach the figure given in the Annual Report for the year ending June, 1940 when 774 and 605 vessels entered these two ports respectively. The figures are however still well below the number of vessels that entered these ports during the year ending 30th June, 1939 when 934 and 758 called there respectively. The numbers of vessels calling at other ports, although increasing comparatively rapidly, are still low.

Although the total number of ships have decreased as compared with the pre-war years the number of cases of infectious disease exceed the pre-war figure as shown in the following table :—

Table showing the Number of Cases of Infectious Diseases Dealt with at Cape Town and Durban in 1939 and 1947.

<i>Year Ending.</i>	<i>Cape Town.</i>	<i>Durban.</i>
30th June, 1939.....	248	260
30th June, 1947.....	928	756

This is a reflection of the unsettled post-war conditions of movement of populations and of overcrowding on ships and on shore, all of which increase the chances of the spread of infection.

The largest proportion of the cases of infectious disease consists of venereal diseases. These diseases formed an important cause of sickness and absence from duty amongst ships' crews. Immediate report of the occurrence of such cases must be ensured so as to commence treatment at the Hospital or Municipal Clinics on shore if no facilities for treatment exist on board. Attention was also concentrated on tracing and removing from port areas sources of venereal infection. The seamen's missions also assisted by providing occupation and relaxation for seamen arriving in port, in the form of organised sports, concerts, motor tours, canteens and reading rooms.

No formidable epidemic diseases were encountered but over 60 cases of measles occurred on ships arriving at Cape Town and ten cases of chicken pox at Durban. These were dealt with by removal of the cases to the local infectious diseases hospitals and by a thorough disinfection of the quarters on board ship after removal of the cases. At Cape Town seventeen cases of malaria were sent to the City Isolation Hospital. These cases were infected in West Africa. Twenty three cases had occurred on another vessel but they had recovered on arrival at Cape Town.

Protection against various communicable diseases was required by a number of crews and passengers leaving the Union. Vaccination against smallpox was carried out and inoculation against yellow fever formed an important duty of the port health officers. At Cape Town 3,310 persons and at Durban 3,180 passengers and 3,164 ships' personnel were inoculated against yellow fever. An additional duty which devolved on the Health staff at Durban was the control of aircraft which arrived from yellow fever infected areas.

In accordance with the provisions of the International Sanitary Convention the port health staffs at Cape Town, Durban and East London carry out inspections of vessels and issue, after fumigation a deratisation certificate, or otherwise, a deratisation exemption certificate. The number issued is shown in the table.

A small proportion of the vessels arrived from plague-infected or plague suspected ports and had to be systematically inspected before and also sometimes after unloading. To prevent the migration of rodents rat-guards are fixed to the ropes and where necessary anti-rodent measures like trapping, bait poisoning, cyano gassing and fumigation were carried out on board, apart from the routine measures in the port areas. The Port Health Officer at Durban writes: "It is worth mentioning that the proportion of ships showing decided rodent infestation is getting less. The modern vessel is built of rodent proof materials and with a minimum of spaces where vermin can harbour. As the older types of vessel drop out of commission the numbers requiring fumigation must decrease. This does not mean however that such vessels cannot harbour rodents and the usual care will still have to be taken to obviate the possibility of migrations from ship to shore by our usual methods of fixing ratguards on all ropes and hawsers and making gangways conspicuous by white washing and lighting when vessels arrive from plague infected or suspected ports."

A staff of health inspectors and rat catchers carry out all anti-rodent work on vessels and in the harbour area. Some of the ports have expanded considerably during the war and much effort is required to keep the rodent infestation to a minimum. The number of rodents accounted for during the year at each port is shown in Table 18. Rodent proofing of all new buildings, sheds and warehouses is insisted on and old buildings are improved as far as possible. Dilapidated structures such as old rubble walls, old buildings and reclamation sites tend to become rodent infested and require continuous attention where permanent improvements cannot be made.

A feature of the post-war trade is the importation of second hand clothing and bags. Where these are not accompanied by a satisfactory certificate of fumigation or

disinfection the port health staff had to ensure the exclusion from the Union of infective material by disinfecting all old clothes and bags before issuing a release certificate.

Another important duty carried out at the ports was the examination and where necessary, condemnation and destruction of imported foodstuffs. Such action was taken in a certain number of cases where food was found to be unfit for human consumption in terms of section 28 of the Port Health Regulations.

TABLE 18.—PORTS OF THE UNION: HEALTH MEASURES, 1946-47.

Item.	Cape Town.	Durban.	Port Elizabeth.	East London.	TOTAL.
Vessels dealt with	1,187	1,360	680	545	3,772
Cases Communi-					
cable Disease...	928	756	—	—	1,684
Vessels Disinfected	126	22	—	18	166
Consignments					
Second-hand					
Clothing, etc...	134	92	16	2	244
Deratization Fu-					
migation — In-					
ternational Sani-					
tary Convention	73	120	—	15	208
No. of Exemption					
Certificates					
Issued—I.S.C...	13	75	—	4	92
Rodents Destroyed					
on Vessels and					
in Dock Areas..	3,412	6,586	427	2,819	13,244
Plague-Infected					
Rodents.....	—	—	—	—	—

Airport Health Measures.

In accordance with the terms of the International Sanitary Convention for Aerial Navigation the Aviation Health Act was passed in 1935 and under this Act and the Public Health Act measures are taken to prevent the introduction of infectious diseases into the Union from other territories. The possibility of yellow fever being introduced by aircraft which have passed through the yellow fever endemic area of Central Africa constitutes much the most serious threat to this country from aerial navigation. The measures which are taken at the various sanitary airports are therefore directed primarily at the prevention of this danger although the possibility of other diseases being introduced is not overlooked, particularly in times of epidemics in those countries which aircraft arriving in South Africa may have traversed. In view of the importance of yellow fever in connection with the rapid development of aerial navigation, it seems appropriate to discuss this disease briefly at this stage.

Yellow Fever.

This disease has not as yet occurred in the Union but the possibility of its introduction, particularly by aircraft, constitutes an ever present threat. In accordance with the terms of the International Sanitary Convention for Aerial Navigation the Aviation Health Act was passed in 1935 and under this Act and Public Health Act measures are taken to prevent the introduction of infectious diseases, and especially yellow fever, into the Union.

A large area of Central Africa is known to be infected. The insect vectors, *Aedes aegypti* and other related species of *aedes*, have been found over large areas of the Union and occur in considerable numbers in the coastal area of Natal. In fact it was here that *Aedes aegypti* caused a widespread epidemic of dengue fever some twenty years ago, a clear indication that the mosquito is present in sufficiently large numbers to be dangerous. The exact extent of *aedes* breeding in the Union is not known but surveys are being made in order to ascertain the extent of the danger. The Department was fortunate in securing the services of an experienced entomologist, Mr. Redman-King, in a temporary capacity to carry out this survey work. His

findings were very useful so far as he was able to go in the short time at his disposal, but the investigations will have to be continued as Mr. Redman-King had insufficient time to complete the survey. In any case, it is clear that the mosquito exists in sufficient numbers on the Natal coast to constitute a definite danger if yellow fever were introduced in that area.

The establishment of an international airport which is under construction close to Durban will potentially increase the danger. Steps have, however, been taken by the Department for several years to prevent the introduction of this disease both by the spraying of all aircraft arriving from the infected area to destroy any potentially infected mosquitoes and by insistence that all passengers from infected areas should be in possession of valid Yellow Fever inoculation certificates. Fortunately the vaccine is effective in preventing yellow fever and persons so protected do not carry the disease to others as the virus cannot survive if inoculated into them by an infected mosquito. In addition to these measures steps will have to be taken at Durban to keep the airport and its environs free from the mosquito vector. The Department is at present actively engaged in investigating the detailed measures which will be necessary in order to ensure that this is done.

(b) Diseases inside the Union.

Before discussing the control of individual diseases it may be of interest to refer briefly to the various administrative and financial arrangements which exist in respect of different diseases. It is a fundamental duty of all health departments to control the spread of infectious diseases in their areas. In the Union this duty is delegated, in terms of the Public Health Act, to the local authorities concerned. In respect of most infectious diseases the local authorities receive a refund of 50 per cent. of the cost of hospitalizing cases where this is done in order to prevent further spread of the disease.

There are, however, certain diseases which present problems of a more national character and in regard to which other arrangements obtain. Leprosy, for instance, is dealt with entirely by the Government. All cases are isolated under control of the Union Health Department and treatment is offered free of charge. In regard to tuberculosis, although the responsibility for dealing with individual cases rests with each local authority, the Government has provided a great deal, in fact, most of the available hospital accommodation and has launched an extensive scheme for controlling the disease. This is described in the appropriate section of this report. The Government also bears 87½ per cent. of the cost of hospitalization of tuberculosis cases and the same proportion of the cost of conducting tuberculosis clinics. The Government bears the full cost of the treatment of cases of venereal disease. In the country districts and the smaller towns the treatment is given by the Union Health Department through its district surgeons. In the larger towns the municipal health departments provide the treatment by means of what are known as "approved schemes", which are financed entirely by the Government.

There are six diseases, which are classified under the Public Health Act as "formidable epidemic diseases" and in respect of which special financial provisions apply. The diseases concerned are plague, typhus and smallpox, which frequently occur in the Union, and cholera, yellow fever and sleeping sickness, which have never as yet made their appearance here although precautionary measures are constantly in operation to prevent their possible introduction. In respect of the formidable epidemic diseases the general administrative arrangement obtains, namely, that each local authority is responsible for the suppression of these diseases in its area, but the financial arrangement is that the Government refunds to the local authorities the full cost of necessary measures taken in dealing with an outbreak or suspected outbreak. In actual practice, although it is the function of the local authority to control any outbreak of formidable epidemic disease,

such outbreaks are immediately notified by telephone or telegram to the Union Health Department, as required by law, and the Department immediately takes steps to ensure that the local authority concerned is taking all necessary measures. The majority of outbreaks of formidable epidemic disease take place in the rural areas where, in most cases, there is no constituted local authority and the magistrate is therefore the local authority. In such cases, as in fact in all outbreaks of infectious disease in such areas, the district surgeon takes the necessary steps to control the disease. He acts either individually or in conjunction with medical or other field staff sent from the regional office of the Department when necessary.

There are two other diseases, namely, malaria and bilharzia, in respect of which special administrative arrangements obtain because of special circumstances. In the rural areas in the widespread malarious regions of the Northern and Eastern Transvaal malaria control is exercised by the Union Health Department through its own malaria organisation. This is done largely at the expense of the provincial administration which, in terms of section 9 of the Public Health Act, must meet the cost of public health measures undertaken in areas where there is no established local authority. The Government, however, makes a grant of one-half of this expenditure to the provincial administration. In Natal the disease is controlled in the rural areas by statutory malaria committees which were set up by the provincial administration some 15 years ago for this purpose. These committees employ their own staff but they receive advice and guidance from the Union Health Department. Bilharzia also constitutes a peculiar problem due to the nature of the disease and its deleterious effect on the development and education of the growing child and also due to its rural distribution. In the Transvaal steps are taken to control and to cure the disease in school children by the Transvaal Bilharzia Committee, an organization financed to the extent of 50 per cent. by the Provincial Education Department and 50 per cent. by the Union Health Department. The committee itself consists of representatives from both these departments. The question of the Government taking over more direct responsibility for the control of this disease is at present under consideration, as described in the appropriate section.

The various diseases will now be discussed individually.

Infectious Diseases Notifications.

The number of notifications of diseases in the Union during the year under review is shown in table 19. The table in its present form was introduced in 1945 and was designed to indicate more clearly than previously not only the incidence of the notifiable diseases in the four racial groups but also the figures for five areas in the Union. Apart from the three northern provinces, notifications from the Transkei are compiled separately from those for the rest of the Cape Province.

The table in its present form serves to indicate as accurately as possible under present conditions the incidence of the various diseases. It is, however, clear that in the remoter rural areas and in Native Reserves the services of a medical practitioner are often not available or are not sought and a number of cases of notifiable disease may occur without notification. Accurate notification depends much on an enlightened population who enlists the services of qualified medical practitioners on the occurrence of serious illness.

The total number of notifications and the total number of deaths from notifiable diseases for the year under review has decreased by 8·5 per cent. and 4 per cent. respectively in comparison with the same figures for the previous year. The notifications are however much higher than they were in the pre-war years, when they were 26,010 and 27,241 respectively for the years 1938 and 1939.

A comparison of notifications of different diseases shows that the number of notifications of all forms of tuberculosis is more than half of the total number of notifications, namely 19,652 cases out of 38,210. The deaths from all forms of tuberculosis is nearly 90 per cent. of the total number of deaths from notifiable diseases, namely 7,049 out of the total of 7,943 deaths.

After tuberculosis the disease with the highest number of cases notified was amoebiasis with 4,990 cases and 192 deaths. The mortality is nearly five times as high in Natives as it is in Europeans, due probably to the fact that Europeans seek medical advice and treatment much earlier than Natives do. It is to be observed that the disease is notifiable only in Natal where it is prevalent.

Only three deaths from scarlet fever occurred in 2,824 cases notified. This indicates the mildness of the disease at the present time. Treatment with sulpha drugs is effective in controlling the complications in scarlet fever so that even if the disease becomes more virulent in the future it is hoped that the mortality will remain low.

The incidence of diphtheria decreased considerably and compared favourably with notifications recorded in the pre-war years of 1938 and 1939 when 2,673 and 3,486 cases were notified respectively. It is, however, still far higher than it should be and, as explained in the appropriate section of the report, this high incidence is quite unnecessary.

The incidence of cerebro spinal meningitis was considerably lower than that for the previous year.

Diseases to which Special Conditions Apply.

Tuberculosis.—South Africa is a complex country and it requires a different approach to the problem of tuberculosis than that of countries such as Great Britain, where health measures are applied to a homogenous, stable and disciplined population. In the Union there are Europeans living on farms and in towns, there are Natives living a primitive 14th century existence in tribal reserves, others living on farms owned by Europeans, others in peri-urban and urban areas, some in slums, some in barracks, some in model villages. There are Indians living mostly in Natal, some in rural areas, others in towns. There are Coloureds living mainly in peri-urban and urban areas, although a proportion live in the country. In addition to the differences in social and economic conditions there are great climatic differences in different parts of the Union. The climate varies from the humid heat of the sub-tropics to the contrasts of temperature in arid desert.

For Natives which form far the largest racial group, vital statistics are available only for the urban areas, although the bulk of the Natives still live in the rural areas and Native reserves. Among the Natives, owing largely to the migrant labour policy, there is a constant shifting from country to town and town to country. There is also a strong trend towards urbanization. For all these reasons statistical accuracy with regard to Non-Europeans is almost impossible.

A study of the evidence available shows that tuberculosis in the European is not an alarming disease. The death rate for this section of the community is about as low as that for any other community in the world. In 1945, the last year for which vital statistics are available, the death rate for Europeans for tuberculosis was 32·46 per 100,000.

In the rural areas tuberculosis is not a great health problem in the Non-European at the moment according to evidence of carefully conducted surveys carried out over the years 1937–47. However, the evidence points to an increasing amount of tuberculosis in Non-Europeans in rural areas because of the drift of ill and infectious cases from urban to tribal homes.

In the peri-urban and urban areas however, the problem of tuberculosis in the Non-European is one of the greatest importance.

The rapid growth of industry in South Africa has been responsible for an enormous influx of Non-Europeans into the towns and, owing mainly to the war, the provision of adequate housing has not kept pace with the increasing population. Consequently overcrowding in the towns has reached dangerous proportions.

The factors which operate when a rural Native proceeds to town to work are:—

- (1) He moves from a simple, pastoral, primitive life where he does not work hard to a complex city life, where he has to work hard physically for eight hours a day. In addition to this the Native in industry usually has to spend about another hour a day getting to his place of work, either by bicycle or train, and the same length of time returning in the evening. This does not apply to mine labourers who are housed on the mines.
- (2) He changes from a monotonous simple diet, which is adequate biologically, to a so called civilized diet which is completely inadequate biologically. He often moves from home ground whole maize, milk, vegetables, meat to white bread, tea and sugar.
- (3) He moves from a simple hut to a crowded barracks or slum and from a traditional tribal family life to an unnatural celibate life relieved by prostitutes and illicit alcohol.
- (4) He moves from wide open spaces where he has plenty of recreation in the open air to no recreation, no facilities for enjoying leisure.

The opportunities for infection and super-infection are multiplied under town conditions; bodily resistance is decreased by malnourishment and hard labour and concomitant diseases such as syphilis, alcoholism, amoebic dysentery, etc., soon combine to precipitate a particularly virulent type of tuberculosis which kills the victim rapidly.

It is interesting to note that infection as shown by tuberculin testing is high both in rural and urban Non-European communities. Over a period of ten years Departmental officers have done 250,000 tuberculin tests in all types of communities under differing environmental conditions. It has been found that even in the most remote of rural areas at least 50 per cent. of Non-European children are tuberculin positive by ten years of age.

Another factor of interest is that the type of disease which develops in the rural Native tends to be that usually seen in the European—mainly productive with a bias towards healing—whereas the type of disease which develops in the urban Non-European worker is usually a rapidly progressive exudative lethal disease. It seems likely, therefore, that considering the amount of infection in both rural and urban communities and the difference in type of disease seen in each, the environmental factors already outlined are the real cause of the high death rate in Non-Europeans in urban areas.

Such is the background of tuberculosis in the Union. What then are the methods of control?

Firstly, it is essential in South Africa that adequate housing and recreational facilities be provided for all Non-European urban dwellers.

Secondly, it is essential that all sections of the community should be able to obtain pure water, adequate sewage disposal and all the other benefits of proper sanitary health measures.

Thirdly, it is imperative that all sections of the community, but especially the urban Non-European worker, be provided with sufficient and proper food to maintain health.

The measures to be adopted to deal with actual cases of tuberculosis are those known to all progressive states today, namely, to find, to isolate and treat, to rehabilitate all cases of the disease and to maintain the integrity of the family while the breadwinner is in hospital.

Under the existing Public Health Act (Section 26) local authorities are required to make provision for cases of tuberculosis in their areas. Their share of capital expenditure in so doing is $\frac{1}{3}$ and of maintenance of cases $\frac{1}{8}$, of the cost; the state bears the rest. Under certain circumstances the state may bear the whole capital cost and even on occasion the total cost of maintenance. Although these particularly generous refund conditions exist, very few local authorities have taken advantage of them.

The state realizes that in many cases even so small a burden is too great for a small local authority and a heavy one to bear in the case of large local authorities whose industrial expansion has resulted in enormous and very rapid increases in Non-European population. The department has therefore planned a series of regional hospitals throughout the country which will ultimately be able to deal with all cases requiring active treatment. The entire capital cost of these hospitals is borne by the Government. In terms of the law, however, local authorities are still expected to provide accommodation for cases requiring isolation facilities only. In such cases the government refunds to the local authority two-thirds of the capital cost of providing such accommodation.

The departmental programme also envisages tuberculin testing and mass radiography, on an ever-increasing scale, especially of those sections of the population most at risk, i.e. industrial Non-Europeans, contacts of known cases, food handlers, teachers of children, etc.

When health centres are functioning fully it is hoped that all rural health centres will have their own isolation facilities for tuberculosis cases and that health centres will function as the first line of tuberculosis control. This they should do by finding cases in their areas, by referring suitable cases to regional hospitals for treatment, by providing isolation facilities for cases requiring such a procedure, by altering the socio-economic circumstances of cases and their families so that no further disease arises, by carrying out in fact all the functions of the tuberculosis clinic of the past with this vital difference, that they will be completely integrated with general family health services.

Staff difficulties have of necessity rendered the process of the establishment of regional hospitals slow; but the bold step of training Non-European nurse-aides or practical nurses, commenced in 1946, is already providing results. Some 250 Native and Indian girls are in training or already trained at Springfield Regional Hospital in Durban and it is hoped to have all those hospitals which are now empty staffed and functioning within the next year.

The department has also adopted the attitude that highly trained medical officers are necessary in order to get the greatest efficiency in the diagnosis of tuberculosis and, what is more important, what is not tuberculosis. In South Africa, especially in the sub-tropical areas, many cases of chest disease simulating tuberculosis are seen and a correct differential diagnosis entails the close co-operation of physicians, radiologists, clinical pathologists and bacteriologists working as a team.

The question of rehabilitation is not being lost sight of and the department is considering ways and means, especially the provision of farm colonies where the ambulant but infectious Non-European can work without infecting others.

The State is already, through the Department of Social Welfare, making ever-increasing provision for the physically disabled and their families, and tuberculosis is receiving special consideration.

TABLE 21.—TUBERCULOSIS : HOSPITAL ADMISSIONS, DISCHARGES AND DEATHS, 1946-47.

Hospital.	In Hospital on 1/7/46.	Admissions, 1946-47.	Discharges, 1946-47.	Deaths, 1946-47.	In Hospital, on 30/6/47.	Increase. Decrease.
Rietfontein.....	44	77	59	15	47	3
King George V.....	124	900	314	252	458	334
Nelspoort.....	187	467	454	14	186	-1
TOTALS.....	355	1,444	827	281	691	336

It will be noted that there is an increase of 336 in the number of patients in hospital at the end of the year as compared with that at its commencement.

TABLE 22.—TUBERCULOSIS : CONDITION OF PATIENTS ON ADMISSION TO HOSPITAL, 1946-47.

Hospital.	Minus Group.		Plus Group.		Total.	Average Stay in Hospital.
		%		%		Days.
Nelspoort.....	21	4.5	446	95.5	467	152.8
King George V.....	96	11.9	713	88.1	809	137.1
TOTALS.....	117	8.2	1,159	91.8	1,276	144.9

TABLE 23.—KING GEORGE V. HOSPITAL, DURBAN : ADMISSIONS, DISCHARGES AND DEATHS.

RACE.	Patients in Residence at 1/7/46.			Patients Admitted during Year.			Patients Discharged during Year.			Patients Died during Year.			Patients in Residence at 30/6/47.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
European.....	32	25	57	94	61	155	44	41	85	22	8	30	60	37	97
Coloured.....	8	5	13	36	24	60	12	6	12	12	9	21	20	14	34
Asiatics.....	18	10	28	92	42	134	27	9	36	8	10	18	75	33	108
Native.....	26	—	26	375	176	551	107	68	175	120	63	183	174	45	219
TOTAL.....	84	40	124	597	303	900	190	124	308	162	90	252	329	129	458

TABLE 24.—NELSPOORT SANATORIUM : ADMISSIONS, DISCHARGES AND DEATHS.

	Total.	Europeans.			Coloureds.		
		M.	F.	T.	M.	F.	T.
In Sanatorium on 1/7/1946.....	187	48	71	119	32	36	68
Admitted during year	467	115	164	279	97	91	188
Died during year....	14	7	1	8	1	5	6
Discharged during year	454	110	161	271	97	86	183
In Sanatorium on 30/6/1947.....	186	46	73	119	31	36	67

This Department is very fortunate in that it has the assistance of numerous voluntary bodies in its work. An outstanding contribution is made by the Christmas Stamp Fund which provides three Sunshine Homes for children whose parents are in hospital receiving treatment for tuberculosis. These homes, situated in Pietermaritzburg, Cape Town and Queenstown, are of great value to the Department as they enable many parents to go into hospital for treatment who otherwise could not leave their children. There are also the Natal Anti-Tuberculosis Association, the Cape Tuberculosis Council and other bodies, shortly to be fused into a National Anti-Tuberculosis Association for South Africa, all of which provide important supplementation to the activities of the Department's Tuberculosis Division. The Natal Anti-Tuberculosis Association has for instance, during the last year, built and equipped a convalescent home for European patients at Rosetta in Natal. The Government made a grant of £6,000 towards the capital expenditure involved.

During the year under review the Department was fortunate in obtaining the advice of Dr. A. Q. Wells, Professor of Pathology at the University of Oxford, the discoverer of and the chief authority on the use of vole bacillus vaccine in the prevention of tuberculosis. Dr.

TABLE 25.—RIETFONTAIN TUBERCULOSIS HOSPITAL : ADMISSIONS, DISCHARGES AND DEATHS.

	Europeans.		Coloured.		Natives.		Asiatics.	
	M.	F.	M.	F.	M.	F.	M.	F.
In Hospital, 1/7/1946.....	—	—	6	3	21	14	—	—
Admitted during year	—	—	2	1	43	31	—	—
Died during year..	—	—	—	—	10	5	—	—
Discharged during year.....	—	—	5	4	29	21	—	—
In Hospital, 30/6/1947.....	—	—	3	—	25	19	—	—

Wells kindly consented to visit South Africa at the invitation of the Government in order to gain first-hand knowledge of the tuberculosis problem and of conditions here and to advise the Department on the possibilities of the use of vole bacillus vaccine. His report has since been received and the Department is formulating its plans along the lines indicated by him.

Venereal Diseases.—An increasing number of local authorities have wished to take advantage of the terms of the amended Public Health Act by which the Government refunds to local authorities the full cost of the establishment and maintenance of approved venereal disease schemes. A large number of local authorities have applied for permission to establish venereal disease clinics or to erect accommodation in which to conduct such clinics. As, however, the Government has to bear the full cost the Department has been careful to approve of the establishment of such clinics only where they were shown to be an urgent necessity and where the district surgeon could not carry out the treatment. In this connection it must be pointed out that the treatment of cases of venereal disease is one of the district surgeon's most important functions and the policy of the Department is to have such work done by the district surgeons except in the large local authority

TABLE 26.—TUBERCULOSIS.

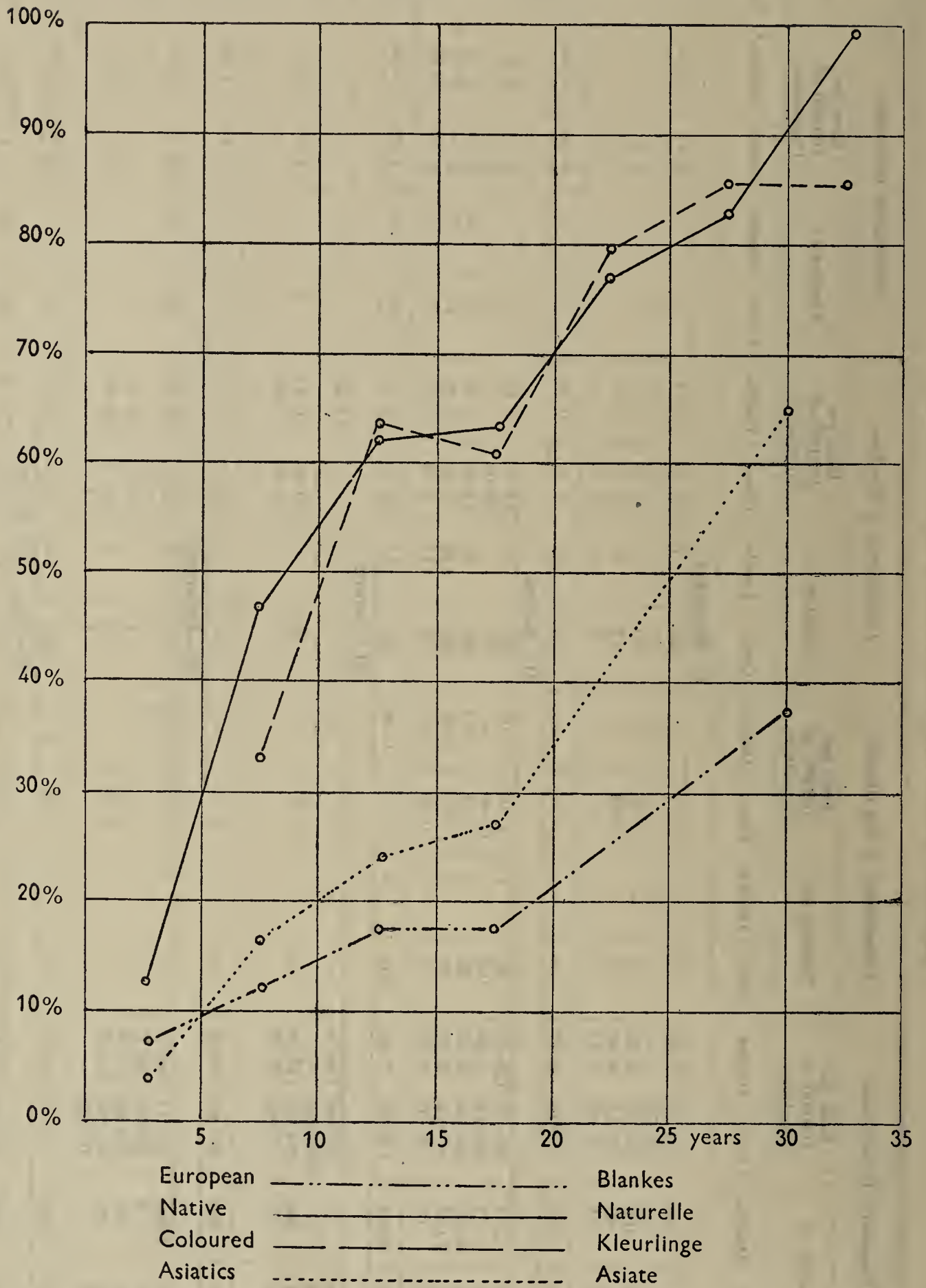
DISTRIBUTION OF CASES AND DEATHS—By RACE.
REPORTED DURING THE YEAR ENDED 30TH JUNE, 1947.

Province.	Pulmonary Tuberculosis.					Tuberculosis of the Glands.					Tuberculosis of the Bone.					Tuberculosis Peritonitis.					Tuberculosis Meningitis.					
	Rate per 100,000 of Population.		Number of		Deaths.	Rate per 100,000 of Population.		Number of		Deaths.	Rate per 100,000 of Population.		Number of		Deaths.	Rate per 100,000 of Population.		Number of		Deaths.	Rate per 100,000 of Population.		Number of		Deaths.	
	Cases.	Deaths.	Cases.	Deaths.		Cases.	Deaths.	Cases.	Deaths.		Cases.	Deaths.	Cases.	Deaths.		Cases.	Deaths.	Cases.	Deaths.		Cases.	Deaths.	Cases.	Deaths.		
I.—EUROPEAN.																										
Cape (excluding Transkei).....	591	184	70·12	21·83	—	—	—	29	7	—	3·44	0·83	4	1	—	0·47	0·12	10	26	—	—	1·19	—	—	3·08	
Transkei.....	6	—	35·72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Natal.....	216	102	92·73	43·79	—	—	—	10	—	—	4·29	—	1	—	—	0·43	—	6	—	—	—	2·58	—	—	—	
Transvaal.....	345	69	33·11	6·62	—	—	—	12	16	—	1·15	1·54	1	—	—	0·10	—	10	11	—	—	0·96	—	—	1·06	
Orange Free State.....	27	11	13·43	5·47	—	—	—	3	—	—	1·49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
TOTAL.....	1,185	366	50·74	15·67	—	—	—	54	23	—	2·31	0·98	6	1	—	0·26	0·04	26	37	—	—	1·11	—	—	1·58	
II.—NATIVE.																										
Cape (excluding Transkei).....	2,846	1,364	263·35	126·22	0·09	—	—	132	77	—	12·21	7·13	25	4	—	2·31	0·37	32	57	—	—	2·96	—	—	5·27	
Transkei.....	2,345	7	188·14	0·56	—	—	—	237	—	—	19·01	—	9	—	—	0·72	—	2	—	—	—	0·16	—	—	—	
Natal.....	3,129	1,197	184·16	70·45	0·12	—	—	312	34	—	18·36	2·00	89	16	—	5·24	0·94	44	28	—	—	2·59	—	—	1·65	
Transvaal.....	3,270	1,033	107·24	33·88	0·07	—	—	224	189	—	7·35	6·20	47	25	—	1·54	0·82	43	69	—	—	1·41	—	—	2·26	
Orange Free State.....	256	63	38·76	9·54	—	—	—	28	11	—	4·24	1·67	2	1	—	0·30	0·15	2	5	—	—	0·30	—	—	0·76	
TOTAL.....	11,846	3,664	153·13	47·36	0·06	—	—	933	311	—	12·06	4·02	172	46	—	2·22	0·59	123	159	—	—	1·59	—	—	2·06	
III.—ASIATIC.																										
Cape (excluding Transkei).....	59	18	349·86	106·74	—	—	—	—	2	—	—	11·86	—	—	—	—	—	2	5	—	—	11·86	—	—	29·65	
Transkei.....	2	—	5,405·41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Natal.....	603	260	264·34	113·98	—	—	—	49	1	—	21·48	0·44	4	3	—	1·75	1·32	12	4	—	—	5·26	—	—	1·75	
Transvaal.....	34	24	90·65	63·99	—	—	—	8	2	—	21·33	5·33	—	—	—	—	—	1	4	—	—	2·67	—	—	10·67	
Orange Free State.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
TOTAL.....	698	302	247·05	106·89	—	—	—	57	5	—	20·17	1·77	4	3	—	1·42	1·06	15	13	—	—	5·31	—	—	4·60	
IV.—COLOURED.																										
Cape (excluding Transkei).....	3,381	1,668	422·11	208·24	0·12	—	—	179	91	—	22·35	11·36	30	18	—	3·75	2·25	78	144	—	—	9·74	—	—	17·98	
Transkei.....	20	3	163·80	24·57	—	—	—	1	—	—	8·19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Natal.....	180	62	795·65	274·06	—	—	—	11	4	—	48·62	17·68	—	—	—	—	—	4	6	—	—	17·68	—	—	26·52	
Transvaal.....	174	89	314·82	161·03	—	—	—	12	9	—	21·71	16·28	1	3	—	1·81	5·43	3	6	—	—	5·43	—	—	10·86	
Orange Free State.....	14	—	100·24	—	—	—	—	1	—	—	7·16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
TOTAL.....	3,769	1,822	416·44	201·31	0·11	—	—	204	104	—	22·54	11·49	31	21	—	3·43	2·32	85	156	—	—	9·39	—	—	17·24	
V.—TOTAL (ALL RACES).																										
Cape (excluding Transkei).....	6,877	4,234	250·86	154·45	0·07	—	—	340	177	—	12·40	6·46	59	23	—	2·15	0·84	122	232	—	—	4·45	—	—	8·46	
Transkei.....	2,373	10	186·05	0·78	—	—	—	238	—	—	18·66	—	9	—	—	0·71	—	2	—	—	—	0·16	—	—	—	
Natal.....	4,128	1,621	189·12	74·26	0·09	—	—	382	42	—	17·50	1·92	94	19	—	4·31	0·87	66	38	—	—	3·02	—	—	1·74	
Transvaal.....	2,823	1,215	67·47	29·04	0·05	—	—	256	216	—	6·12	5·16	49	28	—	1·17	0·67	57	90	—	—	1·36	—	—	2·15	
Orange Free State.....	297	74	33·92	8·45	—	—	—	32	11	—	3·65	1·26	2	1	—	0·23	0·11	2	5	—	—	0·23	—	—	0·57	
TOTAL.....	16,498	7,154	146·53	63·54	0·05	—	—	1,248	446	—	11·08	3·96	213	71	—	1·89	0·63	249	365	—	—	2·21	—	—	3·24	

* The fact that in some instances more deaths have been notified than cases is to be explained by the incompleteness of the returns submitted.

TUBERCULIN TESTS, 1943-47.

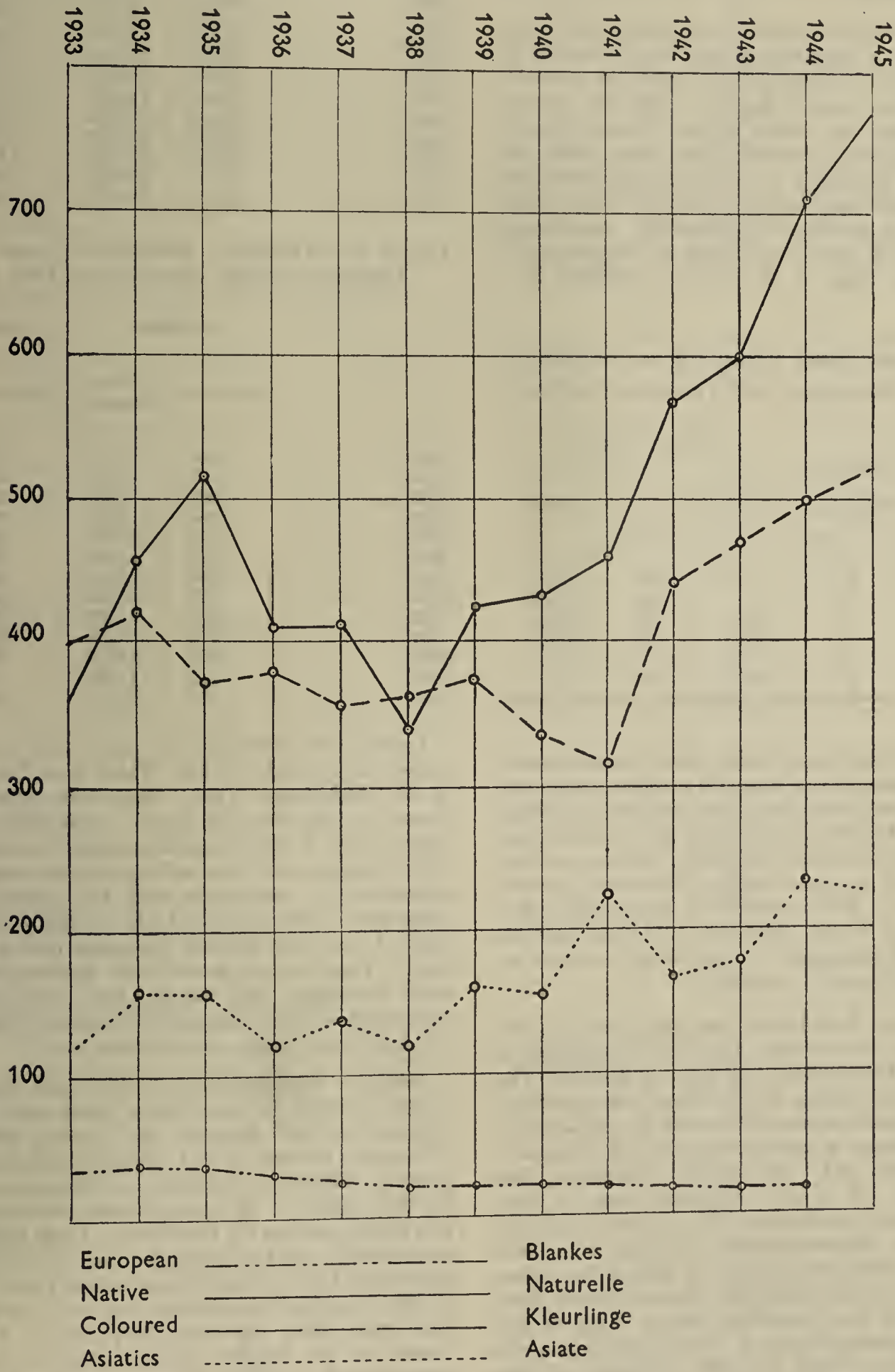
Percentages found positive during this period in age groups for the different races.



SOUTH AFRICAN DEATH RATES FROM TUBERCULOSIS PER 100,000 FOR DIFFERENT RACIAL GROUPS.

Coloured and Indian rates are the combined figures of the Municipalities of Cape Town, Johannesburg, Durban and Port Elizabeth.

Native rates are for Cape Town Port Elizabeth and Durban.



areas where this is impracticable and where the local authorities themselves undertake to maintain suitable clinics.

As in the past, the Department has continued to supply approved drugs free of charge to all local authority clinics and to its district surgeons. The drugs so supplied include arsenical preparations, bismuth, sulpha drugs and, for certain selected clinics and hospitals where there is a venereologist in charge, penicillin. Up to the present the only known rapid methods of cure can be carried out only under strict medical supervision in hospital. As this is impracticable for the vast majority of cases under South African conditions it is necessary to rely upon the older methods of treatment.

In view of the need for the intensive methods of treatment to be carried out in hospital, it may be of interest to indicate the number of hospital beds which are available for the treatment of venereal disease in different parts of the country. These are shown in the following table. It must be emphasised, however, that when using the older methods of treatment it is not the Department's policy to hospitalize cases axcept in circumstances which are so exceptional as to render this essential. Accordingly the vast majority of cases are treated as outpatients at either a municipal clinic or at a clinic conducted by a district surgeon.

NUMBER OF HOSPITAL BEDS AVAILABLE FOR THE TREATMENT OF CASES SUFFERING FROM VENEREAL DISEASES.

Province.	Number of Hospitals.	NUMBER OF BEDS.		
		European.	Non-European.	Total.
Cape.....	28	13	317	330
Natal.....	3	30	220	250
Transvaal.....	17	104	703	807
O.F.S.....	3	10	58	68
TOTALS.....	51	157	1,298	1,455

Through the system of record cards, which was introduced some years ago, cases can and many do continue systematic treatment when they move from one district to another. When patients fail to attend regularly at clinics at the large centres efforts are made to ascertain the reasons for non-attendance and to ensure and, if necessary, enforce regular attendance. By international agreement sailors arriving by sea can receive treatment in Union ports so that continuity of treatment, so necessary to effect an early and complete cure, is assured.

It is gratifying to record that both the European and Native populations in the rural areas have continued to display interest in the treatment of venereal disease. The policy embarked upon during the preceding year of inviting magistrates and district surgeons to inform the Department where the establishment of treatment centres was necessary, has been continued and, with certain exceptions, has borne good results. It is to be regretted, however, that the European farming community has in some instances failed to maintain co-operation by omitting to ensure that their Native employees continue to attend the clinics regularly. It has to be pointed out that to benefit from treatment sufferers from venereal disease must attend regularly for the prescribed period. It is essential that the farming community should be fully cognisant of this fact and that they should co-operate with the Department to the maximum by ensuring that their Native employees attend the clinics regularly and for so long as the district surgeon requires them to do so. It has frequently been reported that some farmers have been known to discharge Non-European employees who were suffering from venereal disease. This practice is not only grossly unfair but inevitably leads to concealment of the disease and, when cases are discovered and discharged, to spread to other

farms in the neighbourhood. Instead of discharging such individuals farmers should ensure that they receive regular treatment by the district surgeon.

TABLE 27.—VENEREAL DISEASES : OUTDOOR ATTENDANCES AT CLINICS AND TREATMENT CENTRES DURING EACH OF THE YEARS 1935 TO 1947.

	Syphilis.		Gonorrhoea.	
	European.	Non-European.	European.	Non-European.
1935.....	17,828	72,256	20,851	16,500
1936.....	17,539	62,783	21,815	19,789
1937.....	23,174	78,948	29,066	25,814
1938.....	24,681	97,963	34,018	27,086
1939.....	27,938	145,167	32,402	24,789
1940.....	33,955	177,848	20,777	29,088
1941.....	29,988	166,623	9,719	37,519
1942.....	31,966	198,004	13,076	38,731
1943.....	33,672	223,242	12,598	30,269
1944.....	22,088	237,751	7,337	41,617
1945.....	24,192	238,703	9,387	35,514
1946.....	29,079	289,885	9,003	21,791
1947.....	31,450	313,123	7,890	15,653

TABLE 28.—VENEREAL DISEASES : CASES TREATED IN HOSPITAL DURING EACH YEAR 1935 TO 1947.

	Syphilis.		Gonorrhoea.	
	European.	Non-European.	European.	Non-European.
1935.....	185	6,819	400	1,250
1936.....	187	7,216	368	1,376
1937.....	252	8,342	422	1,597
1938.....	255	9,210	492	1,939
1939.....	248	10,331	311	2,546
1940.....	228	12,020	228	3,211
1941.....	249	12,951	325	6,525
1942.....	274	11,998	440	6,488
1943.....	307	11,855	421	6,068
1944.....	119	12,550	119	5,812
1945.....	120	13,125	188	4,989
1946.....	122	13,404	178	5,241
1947.....	334	16,167	550	5,037

Leprosy.—In 1756 the first two cases of leprosy were discovered in South Africa. These were Europeans, living in the Drakenstein Valley, who were suffering from the disease in an advanced stage. Although this discovery created a great deal of alarm amongst the public who were devout people and were well acquainted with the biblical injunctions in connection with this malady, no further cases were reported except the daughter of one of the original cases who showed symptoms during the following year. There is no doubt that undiscovered cases did exist elsewhere, but taking into account the public consciousness, it is reasonable to assume that there could not have been many more at that time.

Available historical documents remain singularly silent on this subject for some sixty years until Lord Charles Somerset in 1815 wrote to the Colonial Secretary that: "The great increase of that infectious and dreadful malady, Leprosy, calls for an immediate establishment of a Hospital for the infected". So in six decades the disease had grown to a major problem for the Colony. Until 1826 the financial responsibility for the segregation of patients remained the onus of the local authorities but in that year it was accepted as a debit against Government Treasury. By this time there were more than 100 cases hospitalised at "Hemel en Aarde" in the Caledon District where an institution had been started in 1817. Even as early as that there was another institution as far afield as Uitenhage, but the problem was still growing and more satisfactory accommodation had to be found. Robben Island was opened as a leprosarium in 1845. During the first 100 years after the recognition of the disease in this country there was some interest displayed in its control, but the opening of the settlement on Robben Island appears to have had the effect of banishing the problem from the mainland as well as from the minds of the authorities.

TABLE 29.—VENEREAL DISEASES, CASES TREATED AND ATTENDANCES, YEAR ENDED 30TH JUNE, 1947.

LOCALITY.	CASES TREATED IN HOSPITAL.						ATTENDANCES AT CLINICS AND TREATMENT CENTRES.					
	Syphilis.		Gonorrhoea and Other Venereal Diseases.		Total.		Syphilis.		Gonorrhoea and Other Venereal Diseases.		Total.	
	E.	N-E.	E.	N-E.	E.	N-E.	E.	N-E.	E.	N-E.	E.	N-E.
<i>By Government and Local Authority Medical Officers.</i>												
Alexandra.....	—	—	—	—	—	—	—	5,873	—	2	—	5,875
Adelaide.....	—	—	—	—	—	—	—	306	—	—	—	306
Aliwal North.....	—	—	—	—	—	—	—	138	—	—	—	138
Barberton.....	—	915	—	—	—	915	—	—	—	—	—	—
Beaufort West.....	—	—	—	—	—	—	—	204	—	4	—	208
Benoni.....	—	—	—	—	—	—	260	6,327	—	70	260	6,397
Bethlehem.....	—	29	—	10	—	39	—	772	—	14	—	786
Bethulie.....	—	—	—	—	—	—	—	167	—	8	—	175
Bloemfontein.....	12	246	4	31	16	277	453	8,643	—	—	453	8,643
Bochem.....	—	755	—	11	—	766	—	1,254	—	1	—	1,255
Boksburg.....	—	—	—	—	—	—	466	6,745	4	43	470	6,788
Brakpan.....	—	—	—	—	—	—	217	5,427	3	71	220	5,498
Cape Town.....	118	233	37	54	155	287	6,744	68,702	2,366	8,500	9,110	77,202
Cape Divisional Council	—	—	—	—	—	—	405	6,754	19	304	424	7,058
Colesberg.....	—	—	—	—	—	—	—	849	—	—	—	849
*Darling.....	—	—	—	—	—	—	—	—	—	—	—	—
De Aar.....	—	—	—	—	—	—	—	460	—	35	—	495
Durban.....	—	—	—	—	—	—	—	—	—	—	—	—
Durban (Addington)..	148	—	429	—	577	—	9,141	—	1,961	—	11,102	—
East London.....	—	—	—	—	—	—	642	21,313	44	297	686	21,610
Elim.....	—	508	—	47	—	555	—	—	—	—	—	—
Ficksburg.....	—	—	—	—	—	—	—	2,106	—	—	—	2,106
*Fraserburg.....	—	—	—	—	—	—	—	—	—	—	—	—
Germiston.....	—	—	—	—	—	—	627	7,214	257	94	884	7,308
*Gordons Bay.....	—	—	—	—	—	—	—	—	—	—	—	—
Hanover.....	—	—	—	—	—	—	—	181	—	14	—	195
*Heilbron.....	—	—	—	—	—	—	—	—	—	—	—	—
Hercules.....	—	—	—	—	—	—	—	6,865	—	91	—	6,956
Jansenville.....	—	—	—	—	—	—	—	155	—	—	—	155
Johannesburg.....	—	—	—	—	—	—	6,568	57,530	2,139	1,210	8,707	58,740
*Kenhardt.....	—	—	—	—	—	—	—	—	—	—	—	—
Kimberley.....	1	48	2	31	3	79	265	14,767	16	503	281	15,270
King Edward VIII (Durban).....	—	3,658	—	1,557	—	5,215	—	—	—	—	—	—
Kingwilliamstown....	—	286	—	12	—	298	—	877	—	—	—	877
Kokstad.....	—	—	—	—	—	—	—	1,182	—	—	—	1,182
Kroonstad.....	—	—	—	—	—	—	—	309	—	—	—	309
Krugersdorp.....	—	—	—	—	—	—	—	1,577	—	11	—	1,588
Kuruman.....	—	—	—	—	—	—	—	28	—	—	—	28
*Lichtenburg.....	—	—	—	—	—	—	—	—	—	—	—	—
Molteno.....	—	—	—	—	—	—	—	700	—	—	—	700
*Mossel Bay.....	—	—	—	—	—	—	—	—	—	—	—	—
Nelspruit.....	—	—	—	—	—	—	—	840	—	—	—	840
*Newcastle.....	—	—	—	—	—	—	—	—	—	—	—	—
*Olifantshoek.....	—	—	—	—	—	—	—	—	—	—	—	—
Oudtshoorn.....	—	—	—	—	—	—	—	2,340	—	—	—	2,340
Paarl.....	—	—	—	—	—	—	9	364	—	1	9	365
Paarl Divisional Council	—	—	—	—	—	—	—	1,498	—	—	—	1,498
Pietermaritzburg.....	—	1,649	—	682	—	2,331	—	—	—	—	—	—
Pietersburg.....	—	—	—	—	—	—	—	145	—	—	—	145
*Piet Retief.....	—	—	—	—	—	—	—	—	—	—	—	—
Port Elizabeth.....	—	—	—	—	—	—	1,514	13,509	285	2,048	1,799	15,557
*Port Shepstone.....	—	—	—	—	—	—	—	—	—	—	—	—
*Potchefstroom.....	—	—	—	—	—	—	3,544	28,243	785	1,963	4,329	30,206
Pretoria.....	—	—	—	—	—	—	—	—	—	—	—	—
Rietfontein.....	55	6,291	78	2,599	133	8,890	—	—	—	—	—	—
Randfontein.....	—	1,176	—	—	—	1,176	—	2,878	—	3	—	2,881
Rustenburg.....	—	—	—	—	—	—	—	1,951	—	—	—	1,951
Sekukuniland.....	—	192	—	2	—	194	—	382	—	—	—	382
*Senekal.....	—	—	—	—	—	—	—	—	—	—	—	—
Springs.....	—	—	—	—	—	—	402	8,951	4	106	406	9,057
*Stanger.....	—	—	—	—	—	—	—	—	—	—	—	—
Standerton.....	—	—	—	—	—	—	—	285	—	—	—	285
*Stellenbosch.....	—	—	—	—	—	—	—	183	—	—	—	183
Stellenbosch Div. Coun.	—	—	—	—	—	—	—	900	—	—	—	900
Sterkstroom.....	—	—	—	—	—	—	—	325	—	—	—	325
Steynsburg.....	—	—	—	—	—	—	—	43	—	—	—	43
Swellendam.....	—	—	—	—	—	—	—	14	—	—	—	14
Tulbagh.....	—	—	—	—	—	—	—	5,603	—	19	—	5,622
Uitenhage.....	—	43	—	1	—	44	—	83	—	—	—	83
Umtata.....	—	—	—	—	—	—	193	16,585	7	237	200	16,822
Vereeniging.....	—	—	—	—	—	—	—	—	—	—	—	—
Vryburg.....	—	138	—	—	—	138	—	286	—	3	—	289
Wellington.....	—	—	—	—	—	—	—	123	—	—	—	123
Winburg.....	—	—	—	—	—	—	—	167	—	1	—	168
Zeerust.....	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	334	16,167	550	5,037	884	21,204	31,450	313,123	7,890	15,653	39,340	328,776

* No returns submitted.

So the years went on and in 1874 a medical board "Sees no reason why Lepers should not be retained at the country towns and domiciled in Cottages under direct supervision of the District Surgeon and Magistrate. Lepers are to be found in the Village Homes all over this Country and public opinion is not alarmed at their presence, strange to say". By 1876 there were only 30 lepers on Robben Island. "These have lately very much diminished in number as very few fresh patients have been admitted". In the same year there was talk of closing the island institution as it was doubtful whether any good purpose was being served as the patients were allowed to visit the mainland at frequent intervals. Only male patients were then accommodated on the island while female patients were housed in the Old Somerset Hospital. The institutions had obviously become refuges for those who could not be accommodated elsewhere as patients were recommended for discharge for unruly behaviour.

In 1879, however, a medical board, unlike their colleagues of 5 years previously, suggested "That an Act of Parliament be introduced empowering the Executive Government through its Civil Officers all over the Country to deport to Robben Island or elsewhere, every Leper—male or female, rich or poor of whatever social status—and there to detain them for life—Nothing short of this measure apparently harsh and despotic, as it is, will ever enable us to stamp out this very terrible and most loathsome disease". By this time the disease was prevalent amongst the Natives as far afield as the Transkei and was once more causing great public concern.

The first "Leprosy Repression Act" was passed in 1884 but probably on account of its "harsh and despotic" provisions was not promulgated until 1892 and even so was not drastically applied for many years thereafter. During the century and a quarter since the disease had first been recognised, it had claimed more than 3,000 known victims. It was to claim many more before 1923 when the exacting provisions of the "Leprosy Repression Act" were moderated by recognising an arrested stage in the disease and providing for the discharge of arrested cases.

Since that time we have discharged 8,173 cases from our institutions. These patients are kept under observation for six years before being finally pronounced cured. At present there are 2,286 such cases under surveillance while of all these discharged cases 1,295 have been readmitted for further treatment during the last 25 years. This number of readmissions appears to be high but a study of the type of recrudescence reveals that practically speaking they were of no danger to the public. For example during 1947 there were 59 cases readmitted to the Pretoria Leper Institution. Of these only one case was readmitted because leprosy bacilli were found in specimens taken from him. He was detained. Three cases were readmitted on humanitarian grounds at their own request. Twenty-one cases required operative procedures and were immediately treated and discharged. Thirty-four cases showed clinical activity but no bacilli and were admitted and after further treatment were again discharged.

Thirty years ago there were 345 patients of mixed (Coloured) race in the institutions. To-day there are 97. The European patients have similarly decreased from a maximum in one year of 190 to to-day's figure of 74. These are plain and gratifying figures pointing to the success of our policy of compulsory segregation among the more civilised sections of our populace. The figures for the Native population are not so good at first sight.

Thirty years ago there were about 1,700 in the institutions. To-day there are 1,827. There has, however, been a change for the better in some respects. Certain areas, particularly the Transkei and Pondoland, have greatly decreased their Native leper populations. The Emjanyana Institution in the Transkei at one time had a population of over 800 patients; to-day they have 441. Mkambati Institution in Pondoland at its maximum in 1933 had 252 patients;

to-day the numbers are down to 154. In the Zululand Institution at Amatikulu and in the Pretoria Institution which also caters for the Cape Province and the Free State, the numbers have increased. This would be a cause for despondency were it not for the fact that a new and earlier type of case is coming forward. Over twenty years ago we analysed the average duration of the disease prior to the patient's admission to an institution. The figures were 6.5 years for men and 8 years for women. The obvious inference is that they were potential infectors of the populace over those numbers of years. To-day the average duration of the disease prior to admission in both male and female cases is under 2 years. In most cases the duration is only a matter of months; it only takes two cases who have been hiding, one for twenty and one for thirty years, to raise the average very considerably.

It is not possible to state with certainty why the Transkei and Pondoland are overcoming the disease at a faster rate than the rest of the country. There are however, certain factors which are probably of considerable importance in this connection. The medical services to Natives in those territories are more readily available and, as far as leprosy is concerned, of a higher standard than prevails in other Native areas. The intercommunication between the Natives is easier because of the terrain and tribal customs in the Transkeian Territories. This leads to the spreading of propaganda and the best propagandist is the cured patient. In the Transvaal there is probably a lower state of culture, a greater degree of illiteracy and a greater dependency on Native witchdoctors and herbalists than prevails in the Territories. Most of the admissions from the Transvaal do not know what leprosy is and they have never heard that there are institutions for the treatment of this disease. This is in contradistinction to the Transkei where up to 60 per cent. of the patients are voluntary admissions. Leprosy propaganda is therefore urgently required in the Transvaal and the Department has this in hand.

Tables 30, 31 and 32 show the present position regarding known leprosy cases throughout the Union.

At 30th June, 1947, the Leprosy Advisory Committee consisted of the following members:—

Dr. G. W. Gale (Secretary for Health and Chief Health Officer for the Union): *Chairman*.

General A. J. Orenstein, C.B., C.M.G., C.B.E.

Dr. E. H. Cluver (Director, South African Institute for Medical Research).

Professor W. F. Rhodes (University of Cape Town).

Professor A. Pijper (University of Pretoria).

Dr. R. Turner (Senior Pathologist).

Malaria: (a) Areas.—During the year under review the Department not only carried out routine malaria control measures in areas previously controlled but made progress by expanding its activities to new areas not formerly controlled. The Transvaal is divided into four areas. The work in some areas suffered through the difficulty of obtaining staff for appointment to the various vacant posts in each area. However, sufficient subordinate staff was recruited to carry out anti-malaria work in nearly three quarters of the affected area in the province as forecast in last year's report.

In Natal the establishment of two statutory malaria committees for the areas Biala-Mkuzi and Magut-Candover respectively completed the chain of statutory bodies for malaria control on an organised basis in all the malaria areas under European ownership in this province.

Apart from the above measures the Railway Administration carried out anti-malaria work on its property in the Transvaal, Natal, on its northern Cape section between Bulawayo and Mafeking and in South West Africa.

TABLE 30.—LEPER INSTITUTIONS—PATIENTS THEREIN ON 30TH JUNE, 1947.

Institution.	Europeans.		Native.		Mixed Coloured.		Asiatie.		Total.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Persons.
Pretoria.....	41	32	533	310	58	32	6	2	638	376	1,014
Mkambati.....	—	—	79	75	—	—	—	—	79	75	154
Emjanyana.....	—	—	231	210	—	—	—	—	231	210	441
Amatikulu.....	—	—	206	167	—	—	—	—	206	167	373
Bochem.....	—	—	61	48	—	—	—	—	61	48	109
TOTAL.....	41	32	1,110	810	58	32	6	2	1,215	876	2,091

TABLE 31.—LEPROSY: FIRST ADMISSIONS, RECRUDESCED CASES, DISCHARGES AND DEATHS, YEAR ENDED 30TH JUNE, 1947.

Institution.	Admissions for First Time.	Recru-deseed.	Dis-charged.	Died.
Pretoria.....	289	28	239	75
Mkambati.....	38	13	58	21
Emjanyana.....	161	43	179	41
Amatikulu.....	114	16	125	42
Bochem.....	22	2	28	13
TOTAL.....	624	102	629	192

(b) *Climate*.—The amount of mosquito breeding depends on climatic conditions. In the Transvaal the rainfall in East and North was less than the annual average but in the West it equalled the average. The rainfall was spread over the whole season so that mosquito breeding was kept up throughout. Furthermore it was a comparatively warm year. This, together with the low rainfall in the Pietersburg area led to the formation of numerous pools along the river beds and fairly heavy breeding occurred.

In Natal the rainfall was well below the average during the early part of the year so that a protracted drought occurred. This caused the formation of pools along river beds, especially noticeable along the Tugela river where mosquito breeding occurred. The intermittent heavy rains towards the end of the summer favoured extensive mosquito breeding which soon reached well up into the midland districts from Pietermaritzburg in the south to Paulpietersburg in the north.

(c) *Adult Vectors*.—Vector control has been considerably simplified by the use of D.D.T., a chemical introduced during the war as an insecticide. Experiments with it were fully recorded in the last report. It was found most useful in the control of adult mosquitoes against which it is usually used as a spray of 5 per cent. D.D.T. in paraffin. The D.C.H.O. in Natal reports that the early and extensive vector infestation of Native huts along the Tugela river necessitated the introduction of adult control measures earlier and on a larger scale than usual. Due to the inaccessibility of these areas supplies of D.D.T. had to be carried up to twelve miles on pack donkeys. To overcome this difficulty 30 per cent. D.D.T. in miscible oil was used. This reduced the transport problem very considerably. At the Native kraals the 30 per cent. D.D.T. miscible oil was diluted with water to 2½ per cent. and then used as a spray.

The residual effect of D.D.T. lasted up to three months after one spraying of huts or quarters. During this period mosquitoes entering such hut, were destroyed. The anti-malaria staff could therefore spray many more huts and cover a much larger area in the same time than they could do previously with pyrethrum extract sprays. Where vector infestation occurred for short periods during the season one spraying would suffice otherwise two sprayings were made at three-monthly intervals as compared with weekly sprayings with pyagra before D.D.T. was introduced.

TABLE 32.—LEPROSY CASES REMAINING IN THEIR OWN HOMES ON 30TH JUNE, 1947.

	Certified and Awaiting Removal to Leper Institution.	Home Segregated.	Dis-charged from Leper Institutions, still under surveillance.	Total.
Cape Province (excluding Transkei)	3	—	193	196
Transkei.....	21	—	826	847
Transvaal.....	4	—	700	704
Natal.....	11	—	377	388
Orange Free State	2	1	190	193
UNION.....	41	1	2,286	2,328

Adult control measures are checked by the search for vectors in dwellings by the anti-malaria staff. Certain dwellings are therefore kept as control points and are check-sprayed with "Pyagra" to ascertain the degree of infestation. Table 33 shows the state of vector infestation in the Transvaal from which it appears that the Zoutpansberg and Eastern Transvaal were most heavily infested. It also compares controlled with uncontrolled areas.

In Natal the largest number of adult vectors were identified in the districts of Eshowe, Mtunzini, Lower Umfolozi, Hlabisa, Ubombo, Ingwavuma, Kranskop, Nkandhla and Msinga, i.e. the northern coastal districts and along the Tugela River.

On the Railways rigid control measures were adopted during the year. D.D.T. was applied extensively to living quarters and rolling stock and the work was so successful that only 8 *A. gambiae* were found in 13,163 huts during March, 1947, in the Eastern Transvaal. To reduce malaria vectors further in trains, coaching stock on the Barberton-Kaapmuiden section were sprayed with pyagra daily. Spraypumps and pyagra is carried on all night passenger trains in the malarious areas and spraying of compartments is carried out by bedding boys at the request of passengers. In the Transvaal railway buses from malarious areas were provided with pumps and pyagra so that drivers and their assistants could spray their buses regularly. In Natal buses operating in malarious areas were treated with D.D.T.

THE FOLLOWING TABLE SHOWS THE AMOUNTS OF INSECTICIDE IN GALLONS USED IN VECTOR CONTROL AND THE NUMBER OF HUTS SPRAYED IN 1946-47.

Particular.	Transvaal.	Natal.	South African Railways.
Pyagra used (gallons).....	2,544	2,379	5,353
D.D.T. used (gallons).....	25,000	29,633	1,988
Number of huts sprayed with:			for checking purposes only.
(a) Pyagra..	199,000	140,577	13,163.
(b) D.D.T...	98,840	79,085	

(d) *Anti-Larval Measures* were carried out by spraying stagnant rainwater pools with malariol. In certain cases pumps for this purpose were not available and recourse had to be had to the use of more primitive and wasteful methods. An experiment with spraying from an aircraft proved it to be unsuitable for this purpose in this country. The question of using helicopters for this purpose is at present under consideration. It is still to be demonstrated whether or not the use of helicopters for this purpose would have advantages over the effective and relatively economical methods at present employed.

(e) *Organisation.*—The success of the malaria control measures was made possible not only by the strenuous efforts of the staff of the Health Department but also by those of other Government Departments and semi-official and private bodies. The South African Railways had a trained staff on the various systems where malaria occurred, namely Transvaal, Natal, Northern Cape and South West Africa. They carried out the work not only for the sake of the Railway Staff but also for the protection of passengers. The Department of Lands did anti-malaria work on the various settlements under its control. This Department worked in close co-operation with the Senior Malaria Officer and did excellent work at Loskop, Pongola and Belgium Block.

The Irrigation Department were responsible for anti-malaria work along the banks of irrigation canals at Loskop and Rust-der-Winter amongst others, while the Social Welfare Department assisted on the settlement at Groblersdal. The Department of Native Affairs helped in the Native Reserves in the Northern Transvaal.

The Provincial Department of Education arranged for the Health Department to give lectures to Native teachers during April, 1947, on malaria and other subjects.

Magistrates, Native Commissioners, local authorities, large commercial undertakings and farmers' unions were all organized to assist in the suppression of malaria.

The following table indicates the amount of instruction given by the Senior Malaria Officer to various classes during the last three years, the figures indicating the numbers attending each class:—

Class.	1944-45.	1945-46.	1946-47.
Health Inspectors (Tropical Hygiene).....	5	—	18
Medical Practitioners (D.T.M. and H.).....	12	16	12
S.A.R. and H. Foremen.....	15	12	20
Native Teachers.....	34	—	34

Apart from these classes the Senior Malaria Officer gave numerous talks to farmers' societies and agricultural unions held staff meetings at Tzaneen, anti-malaria Committees meetings at Tuinplaats and attended two conferences in Pretoria.

(f) *Incidence.*—In order to assess the effect of all these anti-malaria activities on the incidence of the disease the number of blood smears examined could be compared with those in previous years or with those obtained from uncontrolled areas. During the year 672 smears were examined for the Pietpotgietersrust District of which 73 were found to have malaria parasites present. This should be compared with 3,415 smears examined in 1942. This reflects not only a great reduction in the number of examinations and a saving of time but also indicates that malaria does not play such an important part as it did previously. The total number of slides examined in the Transvaal were 1,898 of which 345 were positive (76 in Europeans). In Natal the positive smears and the number of sick or dead from malaria as reported by Native malaria assistants were amongst the lowest recorded as shown in the next table:—

TABLE SHOWING NUMBER OF POSITIVE SLIDES, NUMBER OF NATIVES VISITED AND THE NUMBER OF THESE REPORTED TO HAVE SUFFERED OR DIED OF MALARIA.

Year.	No. of positive smears.	No. of Natives visited.	No. reported with Malaria.	No. reported dead of Malaria.
1942-3...	173	315,800	350	10
1943-4...	203	290,270	497	7
1944-5...	139	234,356	237	9
1945-6...	454	250,667	725	48
1946-7...	134	271,303	269	9

Another index of the decreasing incidence of malaria is the diminishing amount of anti-malarial drugs issued in the Transvaal each year as shown in the table below:—

TABLE SHOWING THE AMOUNT OF ANTI-MALARIAL DRUGS USED.

Year.	TRANSVAAL.			
	No. Quinine tablets 5 gr. issued.	No. Atebrin and Plasmoquin tablets issued.	Injections given.	
			Atebrin.	Quinine.
1942-3...	—	—	140	324
1943-4...	1,849,000	—	185	444
1944-5...	1,578,000	41,450	190	210
1945-6...	1,298,000	41,000	275	504
1946-7...	677,000	21,675	150	360

Research.—In the fight against disease new methods of defence or attack must be devised. D.D.T. had given new stimulus to the search for ever more powerful or efficient insecticides and larvicides. So it happened that samples of a new chemical called "gammexane" were tested for its effect on mosquitoes and ticks. Four samples were tested, two of which were manufactured by South African firms. The experiments with ticks were summarized by the Senior Malaria Officer as follows:—

Gammexane in quantities of 100 mgm. per sq. ft. and more destroys the tick *ornithodoros moubata* during the first few days after spraying a native hut with it. At 600 mgm. per sq. ft. its effects lasted two weeks. With one application at this strength the tick could not be eradicated and experiments are proceeding with more frequent applications.

Experiments to test the effect of gammexane on mosquitoes are reported on by the Senior Malaria Officer, Tzaneen, as follows:—

"For this experiment the solution LG. 140 (10 per cent. gammexane in paraffin) was used. Nine Native huts were first sprayed with pyagra and the number of mosquitoes in the huts counted. After this the huts were sprayed with gammexane at 10 mgm. per sq. ft. and counts of mosquitoes were made after that at weekly intervals by spraying out with pyagra. Similar experiments at 50 mgm. per sq. ft. were also made and the findings are reflected in table 34.

Summary.—An experiment with 10, 50 and 100 mgm. gammexane per sq. ft. was done. Mosquitoes were found in the huts in the second week but their numbers remained low compared with the control. The same remarks hold for the experiment with 50 mgm. but where 100 mgm. gammexane to the sq. ft. was used no mosquitoes were found for the first twelve weeks after which time mosquitoes disappeared everywhere due to onset of winter. Further experiments will be carried out in the next year."

TABLE 33.—VECTORS PER 1,000 HUTS IN CONTROLLED (C) AND UNCONTROLLED AREAS (U).

SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.	
C.	U.	C.	U.	C.	U.	C.	U.	C.	U.	C.	U.	C.	U.	C.	U.	C.	U.	C.	U.
Letaba.....	—	—	—	94	1,391	13	2,668	1·4	323	2·3	411	—	1,943	6	1,585	—	—	—	—
Zoutpansberg.....	—	—	40·1	70·5	3,210	49	3,810	545	3,829	84·5	3,010	31·6	2,633	50·9	3,800	16·6	2,405	4·3	1,431
Pietersburg.....	—	—	21	—	104	—	16	1·1	3	1·7	1·3	3·4	5	7·6	2·2	2·4	2	—	—
Lydenburg.....	—	—	—	95·8	—	1·6	—	2·1	—	0·7	—	0·8	3·1	—	—	—	—	—	—
Potgietersrust.....	—	—	—	—	65·2	9·6	—	1·9	19	0·4	343	1·5	180	—	7·5	0·8	4	—	—
Waterberg.....	0·7	—	—	—	15	—	—	2·0	—	1·0	25	13·4	24·2	8·8	50	9·1	—	—	—
Groblersdal.....	—	—	—	—	—	—	—	—	—	—	—	—	—	0·25	—	—	—	—	—
Eastern Transvaal.....	117·7	—	133	250	—	194	150	59	2,421	142	1,000	92·2	250	75	1,997	30	998	—	—

TABLE 34.—EFFECT OF GAMMEXANE AT VARIOUS STRENGTHS AND AT VARIOUS PERIODS ON MOSQUITOES IN HUTS.

		Mosquitoes found after the following periods.															
Hut No.	Gammexane per sq. ft.	Mosquitoes found before experiment.	1 week.	2 weeks.	3 weeks.	4 weeks.	5 weeks.	6 weeks.	7 weeks.	8 weeks.	9 weeks.	10 weeks.	11 weeks.	12 weeks.	13 weeks.	14 weeks.	
1	10 mgm....	35	—	4	—	1	1	3	1	5	—	7	7	—	13	18	
2	10 mgm....	9	—	1	—	—	3	4	—	17	9	12	6	2	17	—	
3	10 mgm....	59	—	1	6	1	12	3	1	11	5	—	6	4	10	—	
4	10 mgm....	69	—	3	9	—	10	4	9	11	—	14	—	—	14	3	
5	10 mgm....	23	—	—	12	5	3	10	3	29	11	10	19	7	7	10	
6	10 mgm....	63	—	—	1	1	—	2	3	14	6	2	—	1	—	2	
7	10 mgm....	41	—	—	8	—	—	8	3	21	17	2	1	—	—	2	
8	10 mgm....	4	—	2	—	—	1	16	5	13	1	2	—	—	—	1	
9	10 mgm....	88	—	—	5	2	—	10	—	24	—	1	—	—	—	—	
10	50 mgm....	—	—	—	1	1	6	4	2	7	—	—	—	1	—	—	
11	50 mgm....	—	—	—	4	—	8	5	2	4	—	—	—	—	—	—	
12	100 mgm....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Average for first 9 huts.....		43·5	—	1·2	4·5	1·1	3·3	6·7	3·1	16·1	0·4	5·5	5·3	1·6	6·6	4·1	
Control to above experiment.																	
1	—	22	84	169	175	35	109	126	86	106	36	39	34	27	—	20	
2	—	8	1	69	121	28	3	12	37	14	44	27	16	14	1	—	
3	—	56	115	153	171	110	212	130	123	65	64	51	50	23	3	16	
4	—	37	20	18	112	18	35	42	31	83	15	23	3	2	2	—	
5	—	38	63	94	130	53	34	36	117	65	40	38	2	2	1	6	
Average.....		32·2	76·6	100·6	141·8	49	79	69	79	86·6	40	21·2	21	15·6	1·2	8·4	

Bilharziasis or Schistosomiasis.—The Department has for some considerable time been exercised about the bilharzia problem, which undoubtedly is one of major importance throughout extensive regions of the Union. Consideration has been given to the possibility of dealing more effectively with this disease than has been possible in the past. Although it occurred considerably later than the year under review, it may not be out of place to mention that in January, 1948 the Honourable the Minister of Health convened a conference on the matter in Pretoria at which he presided personally. In addition to Departmental officers there were representatives from several other bodies. Dr. J. Kieser, the Chief Medical Inspector of Schools for the Transvaal and Chairman of the Transvaal Bilharzia Committee, who has always taken a very active interest in this problem, represented the Transvaal Education Department and the Bilharzia Committee. The question of further research is of great importance and research bodies were accordingly represented by Prof. Oosthuizen, Chairman of the Medical Research Committee of the Council for Scientific and Industrial Research, and by Dr. Gear, Pathologist, and Dr. de Meillon, Entomologist, of the South African Institute for Medical Research. The Department of Agriculture was represented by Dr. Ortlepp, Helminthologist at the Onderstepoort Laboratories.

The conference served a most useful purpose. It was agreed that there is need for further research into the bionomics of the fresh water snails, in order to devise effective means of eradication, as well as into methods of diagnosis and treatment. The research work would be a matter for the Medical Research Committee of the Council of Scientific and Industrial Research. It was considered that the organisations built up by the Department in co-operation with other public and voluntary bodies to deal with malaria in the Transvaal and Natal could undertake control of bilharzia in both provinces. Education of the public and propaganda should be undertaken by the Division of Nutrition and Health Education.

The Honourable the Minister announced that the Transvaal Bilharzia Committee would be replaced by a National Bilharzia Advisory Committee to advise the Ministry of Health on the control of bilharzia and its first task would be to draw up a research programme. It was agreed that the Transvaal Bilharzia Committee should continue to function in the meantime pending the implementation of these proposals.

During the year under review the mobile unit of the Transvaal Bilharzia Committee carried out investigations in the Bushbuckridge area in co-operation with the Masana Mission School and Hospital. A total of 966 Natives, adults and children, were examined and 494 or over 50 per cent. were found to be infected with bilharzia. Twenty-five of these Natives were selected for treatment by the intensive Blair Alves method. It was the intention to re-examine these cases a month after treatment. It was, however, only possible to re-examine 16 of the patients but of these 15 were found to be clear of ova. There were no manifestations of acute antimony reaction other than some cough and nausea which subsided within 10 minutes to about half an hour after injection. The cases were hospitalised for four days and were medically examined the day before treatment commenced. The usual diet of the Masana Mission Hospital was given. This consists of stewed beef and mealie porridge with fruit in season.

The figures are small but the results are encouraging. It must always be borne in mind, however, that antimony is a heavy metal and that during the administration of this method of treatment acute liver damage may occur and lead to unavoidable death in a very short time.

The pupils of the White River Government School were examined and out of a total of 430 there were 60 children who showed ova and blood, while 58 showed only blood in various amounts in their urine. Time did not allow of the mass application of the Alves Cercarial Skin Test at this school. The majority of the positive cases were patients of the medical practitioners at Nelspruit and the treatment was left in their hands.

Preparations were made for a bilharzia treatment camp in the Brits area during the July vacation of 1947 and a survey of the schools in that area was undertaken. During this survey examinations were done in fourteen schools. In eight schools only the boys were examined. In six schools all boys and girls were examined. The results of investigations are shown in the following table:—

	Numbers Examined.	Positives.	Percentage.
Boys.....	1,279	112	8·8
Girls.....	361	20	5·5
TOTAL..	1,640	132	8

The camp was held during July, 1947, at Brits and was a great success, the children referred to in the table receiving treatment for their disease. A detailed account of the camp will be published in next year's annual report.

Twenty-five cases of bilharzia from the neighbourhood of Pretoria were treated at the School Clinic by the school medical officers during the year under review.

Formidable Epidemic Diseases.

Plague: Human Outbreaks.—There were 11 outbreaks of plague with a total of 23 cases during the year (Table 35). There were 12 deaths. All the cases were Non-Europeans. No outbreaks have been reported from adjoining territories during the year under review.

Epizootics.—The epizootic among rodents in the Roodepoort District, Transvaal, which was referred to in last year's report, continued into August. The presence of plague, however, was never proved and it is assumed that mortality was probably entirely due to *Listeria* infection, i.e. Tiger River disease.

Listeria was isolated from *Tatera lobengulae* at Mkusi, Northern Zululand in May, 1947. At that time the area was very heavily infested with *Mastomys*. Reports from Mkusi, in June stated that mortality had been noticed among *Mastomys* but neither *Listeria* nor *P. pestis* was isolated. A survey was planned to study the problem on the spot but the results of the investigations were again inconclusive.

Orange Free State Goldfields.—The Department is now working in close touch with health officials of the gold mining companies operating in the Orange Free State. All new buildings on mine properties are being built according to the latest rat-proofing specifications.

An underground rat/flea survey has been planned to take place on one of the Rand mines in order to determine environmental conditions in which mine rats and their fleas exist and to discover what species of fleas are found underground. It is intended to use this information as a basis for eliminating the danger of plague outbreaks on mines in endemic plague areas.

A departmental plague inspector has been appointed to Odendaalsrust where a constant check is kept on all farms surrounding the mining lease areas. Farmers are instructed in methods of destroying domestic and field rodents and farm-buildings are being improved so as to eliminate rat harbourages.

Plague Research Laboratory.—The task of collating ecological field plague data continues. Distribution maps for approximately 60 rodent and flea species have been prepared. Attempts are being made to correlate information regarding the distribution of rodents and fleas with environmental conditions such as meteorological factors, vegetation, food supplies and soil types. Having established basic correlations, work will be concentrated on the most promising lines of research.

In order to organise the work of the anti-plague staff on a more systematic basis, a map has been prepared illustrating the administrative regions of the Deputy Chief Health Officers and showing numbered anti-plague regions and sub-regions. Sub-regional circular survey routes are shown and, using the map as a basis, a complete system of circular (sub-regional), ray and block surveys has been

drawn up. The object is to extend the distribution records of plague-carrying rodents and fleas, to establish advance information on the density and increase or decrease of rodent population and to discover any suspicious rodent mortality in the field. In this way it will be possible to provide information for forecasting possible plague outbreaks. Circular surveys are to be conducted annually during the winter when plague outbreaks are at their lowest ebb. The more intensive ray and block surveys, planned for endemic areas only, are begun in spring and continued into the summer months.

A series of susceptibility tests has been made on *Mastomys* (the multimammate mouse). The tests show it to be highly susceptible to plague and an ideal laboratory test animal. Efforts to breed it in the laboratory, at first unsuccessful, are now well under way and are being produced in sufficient numbers of routine tests and experimental work.

Work is proceeding on a series of studies designed to establish correlations between skull measurements and age of gerbils bred in the laboratory and those caught in the field. If such correlations exist, a reliable method will become available for establishing age—and hence whether animals have reached maturity or passed the breeding stage—from skull measurements of gerbils trapped in the field.

The gerbil breeding cycle studies conducted by Dr. Marjorie Allanson and Miss Lewis, referred to in last year's report, have been completed. *Tatera afra* from the South-West Cape, breeds from August to March only, while *T. brantsi*, from the Transvaal, breeds throughout the year. In both cases, females born near the beginning of the breeding season mature and breed before the season's end. It is unlikely that females of either species survive for more than two seasons. Both species are capable of producing from five to six litters per season, averaging, in the case of *T. afra*, 3.98 per litter with range of 1 to 6 whereas *T. brantsi* average 2.64 per litter with a range of 1 to 4.

The P. 3 method of rat extermination is now being widely used, particularly in the maize growing areas, and has proved to be a most effective means of control. Several municipalities in the Transvaal, Orange Free State, and Cape Province have applied for licences to manufacture their own P.3 boxes. Further experiments will be planned when supplies of alternative poisons become available.

TABLE 35.—DISTRIBUTION OF HUMAN PLAGUE AMONG THE DISTRICTS OF THE TWO AFFECTED PROVINCES DURING THE YEAR ENDED 30.6.47 (ALL CASES WERE NON-EUROPEANS).

	No. of Outbreaks.	Cases.	Deaths.
Cape Province :—			
Uitenhage.....	1	1	—
St. Marks.....	3	9	5
Williston.....	1	1	1
Glen Grey.....	1	1	—
Queenstown.....	2	4	3
Orange Free State :—			
Vredefort.....	1	1	—
Heilbron.....	2	6	3

TABLE 36.—NUMBER OF CASES OF TYPHUS IN THE UNION FROM 1933 TO 1947.

Period, year ending 30 June.	Cape.	Transkei.	Natal.	Transvaal.	O.F.S.	UNION.	
						Cases.	Deaths.
1933.....	1,649	—	208	25	243	2,125	302
1934.....	1,905	—	207	208	3,636	5,956	662
1935.....	2,898	—	224	429	3,275	6,826	998
1936.....	835	—	33	457	280	1,605	284
1937.....	694	—	89	46	178	1,007	168
1938.....	822	—	19	53	88	982	168
1939.....	1,067	—	81	93	32	1,273	424
1940.....	635	—	84	60	62	841	146
1941.....	616	—	9	44	45	714	176
1942.....	1,472	—	38	16	20	1,546	359
1943.....	2,687	—	66	145	21	2,919	521
1944.....	5,247	—	85	254	37	5,623	2,600
1945.....	1,171	1,302	180	190	66	2,909	566
1946.....	559	—	155	78	18	790	40
1947.....	262	178	164	12	10	626	32

Smallpox.—During the year under review cases of smallpox were reported from all the four provinces of the Union. It is satisfactory to be able to state, however, that the actual number of cases of smallpox was very much lower than during the previous year—a reduction of 23 per cent. The total number of cases for 1946–47 was 978 with 27 deaths as compared with 1,271 cases and 60 deaths during the previous year. The comparative case death rates were: 2.7 per cent. in 1946–47 and 4.7 per cent. in 1945–46. Over one-third of the total number of cases was reported from the Transkei, while the Transvaal and Natal Provinces each accounted for approximately 29 per cent. of the total. No complete record of the number of persons successfully vaccinated is available but it can be stated that large scale vaccinations were carried out throughout the year.

The provincial incidence of smallpox during the year under review is indicated in the following table :—

Province.	1945–46.		1946–47.	
	Cases.	Deaths.	Cases.	Deaths.
Cape.....	482	7	353	1
Natal.....	412	36	284	6
Transvaal.....	333	17	283	15
Orange Free State.	44	—	58	5
TOTAL.....	1,271	60	978	27

Of the total number of cases reported 29 were in respect of Europeans. From this it may be concluded that the section of the population among whom registration of births is not compulsory suffers most from smallpox. As has previously been pointed out the unvaccinated child constitutes the factor favouring an outbreak of smallpox and the only means of preventing such outbreaks is successful vaccination of the entire population especially children and young adults.

Typhus.—A study of the notified cases and deaths from typhus since 1917 reveals the fact that an epidemic occurred in 1920 when there were 11,276 cases with 1,791 deaths. In the year 1927 the number of notified cases was reduced for the first time to a figure below one thousand—only 895 cases were notified and 136 died. After that it increased again and the numbers of cases which occurred in each province during each of the last 15 years are given in table 36.

The figures include European cases which however never exceeded 5 per cent. of the total and averaged less than 2 per cent. of the total number of cases over the whole period. It will be noted from the table that the number of cases reached a peak in 1935 with 6,826 cases and 998 deaths and then it declined again to the lowest figure in 1941 with 714 cases and 176 deaths.

Another epidemic occurred in 1944 when the death rate was remarkably high. In the following year separate figures for the Transkei were given for the first time because it was found that from 70 to 95 per cent. of all cases occurred in that region and that the districts of St. Marks, Tsomo and Negobo were most regularly affected. The figure for the year under review is the lowest ever recorded.

It is encouraging that the low incidence and death rate for the last two years occurred in spite of the difficulties experienced especially by Natives in obtaining ample supplies of food and soap. The relatively rapid reduction in the number of cases since 1944 can undoubtedly be ascribed to the introduction of D.D.T. to destroy the vector insect—the louse. There is every prospect that this disease can now be effectively controlled and reduced under settled peace-time conditions to negligible proportions. During the war the military authorities took every precaution to ensure that typhus should not occur amongst the troops in the various theatres of war. They succeeded in their efforts but the outbreak of typhus in Italy in 1944 proved for the first time how effective D.D.T. was in the destruction of the louse and how it promised greatly to simplify the control of epidemic typhus. This great promise has been amply confirmed by the subsequent successful use of D.D.T. in the control of typhus in South Africa.

The louse is the vector in epidemic typhus and measures designed to eradicate the louse will also lead to the elimination of typhus from the affected areas. The most important factor in the eradication of the louse is personal cleanliness. In winter washing is often neglected by Natives in the Transkei and the lice have an opportunity to multiply. Crowding of Natives into small huts for the sake of warmth facilitates the transfer of lice from person to person with the result that the whole community is liable to become louse infested. If then the causal organism, the *Rickettsia*, is

introduced into the community the louse vector has every opportunity of becoming infected and transferring the disease from person to person and so beginning an epidemic. During famines typhus tends to occur and spread rapidly. Hunger and malnutrition affect the resistance to this disease. Where therefore poverty exists with conditions of overcrowding, lack of sufficient food and lousiness the stage is set for an outbreak of typhus.

To eliminate this disease therefore a vigorous campaign of health education together with a liberal supply of D.D.T. and instruction in the method of its application is urgently required. Such a campaign is now being carried out in many districts and probably accounts for the low incidence of the disease. With the full strength of the propaganda from the newly created Division of Nutrition and Health Education directed to the backward populations in the Transkei, in parts of Natal and the Transvaal further good results are to be expected. The establishment of the regional office of the Deputy Chief Health Officer at East London will bring the Transkei under closer supervision and make the earlier detection and control of typhus outbreaks possible.

Other Infectious Diseases.

Acute Poliomyelitis.—During the year under review this disease has shown a marked decrease in incidence over that of the previous two years. Only 79 cases with 9 deaths were notified compared with 216 cases and 23 deaths for the previous year. From Table 39 it will be noted that the number of notifications during the year under review falls below the highest number recorded during the ten years preceding the epidemic which occurred in 1944–45. The figures indicate that the epidemic has now definitely come to an end.

TABLE 37.—TYPHUS, 1946–47 : MONTHLY INCIDENCE ACCORDING TO PROVINCES.

PROVINCE.	July.		August.		September.		October.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape.....	44	—	53	—	80	1	34	1
Natal.....	25	1	21	1	41	4	22	3
Transvaal.....	4	1	1	—	—	—	3	—
Free State.....	7	—	—	1	—	—	—	—
TOTALS.....	80	2	75	2	121	5	59	4

PROVINCE.	November.		December.		January.		February.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape.....	42	—	20	3	27	1	35	3
Natal.....	8	1	10	—	6	1	5	—
Transvaal.....	1	—	—	—	—	—	1	—
Free State.....	—	—	1	—	2	—	—	—
TOTALS.....	51	1	31	3	35	2	41	3

PROVINCE.	March.		April.		May.		June.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape.....	22	2	21	1	17	2	45	3
Natal.....	2	—	5	—	11	—	8	—
Transvaal.....	1	—	1	—	—	2	—	—
Free State.....	—	—	—	—	—	—	—	—
TOTALS.....	25	2	27	1	28	4	53	3

TABLE 38.—TYPHUS : YEARLY INCIDENCE.

Province.	Cases.	Per cent.	Deaths.	Case Death Rate per cent.
Cape.....	440	70·29	17	4
Natal.....	164	26·20	11	7
Transvaal.....	12	1·91	3	25
Free State.....	10	1·60	1	10
TOTALS.....	626	100·00	32	5

The epidemic of poliomyelitis during the summer of 1944-45 was fairly fully discussed in the annual report for that year. It was then pointed out that in the Union less than half the cases were reported to have occurred in children under the age of 5 years whereas in overseas countries like America and Australia, where epidemics had occurred, nearly three quarters of the cases occurred in children under 5 years of age. During the year under review about one-third of the cases amongst Europeans occurred in children under 5 years old and two-thirds occurred in children under ten years of age. Amongst Natives about one-third of the cases occurred in children under 5 years and one-half in children under 10 years of age.

During the epidemic of 1944 the first cases occurred in Durban and the disease then spread to other closely populated centres on the Witwatersrand and on the coast, where sanitary facilities were in general good. It therefore seemed unlikely that poor sanitation and flies had played an important part in the spread of the disease although the virus is found in human excreta and in sewage. The disease also occurred in smaller towns like Cradock and Graaff-Reinet in the Cape and in Kroonstad, Frankfort, Bethlehem and Harrismith, where overcrowding and close contact can hardly be considered to play a major part in the spread of infection. A satisfactory explanation for such epidemiological facts has so far not been advanced.

The disease is caused by a virus. It has been stated that this virus is widely disseminated especially during epidemics and a large proportion of the population becomes

carriers of the virus before the disease manifests itself in sporadic or epidemic form. In diphtheria and cerebro spinal meningitis a similar train of events occurs. It is generally agreed that an important method of dissemination of poliomyelitis is by droplet infection when the virus apparently enters the nervous system through the nasopharyngeal area. The disease is apparently also spread by ingestion when the virus enters the nervous system from the intestinal tract. However final proof of the methods of spread is not yet available because of the difficulties connected with research on the virus and on the methods of its transmission. The virus, like many bacteria, appears to have several types. These types have not all been identified and a suitable animal for large scale experiments has not been discovered. The most suitable animal so far appears to be the monkey which is however, not altogether suitable for extensive research. These obstacles to research have delayed the development of simple diagnostic tests and the preparation of a suitable vaccine with which to immunise susceptible individuals.

The specific principles followed in the prevention of an infectious disease are based on a complete knowledge of the cause and the method of spread of the disease. Where knowledge is incomplete general principles are followed, as in the case of poliomyelitis. A pamphlet on the subject was prepared by the Department at the time of the outbreak in 1944 for general information. Various aspects of the occurrence of the disease are described in the pamphlet and the methods of prevention are discussed. Droplet infection is considered important while spread by flies and excreta is possible so that isolation and protection of food should receive particular attention when the disease is prevalent. Physical strain has preceded the outbreak of the disease in many cases so that physical fitness and avoidance of strain should be observed.

Apart from prevention of the disease the provision of adequate facilities for treatment plays a most important part during an outbreak. The introduction of improved methods of treatment has done much to avoid some of the fearful sequelae of this disease and has reduced the mortality to some extent.

TABLE 39.—POLIOMYELITIS : NUMBER OF CASES AND THEIR DISTRIBUTION SINCE 1934.

PERIOD.	CAPE.		TRANSKEI.		NATAL.		TRANSVAAL.		O.F.S.		UNION.
Year Ending.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	Total.
30/6/34..	13	16	—	—	—	—	15	3	15	5	64
30/6/35..	23	22	—	—	2	—	9	4	1	—	61
30/6/36..	7	8	—	1	1	2	2	5	—	—	26
30/6/37..	19	8	—	2	4	3	29	2	5	10	82
30/6/38..	4	2	—	—	—	—	4	5	1	2	18
30/6/39..	9	15	—	1	4	1	—	1	2	1	37
30/6/40..	11	20	—	—	4	3	19	2	2	1	62
30/6/41..	16	14	—	—	6	1	39	12	4	—	92
30/6/42..	16	4	—	2	10	1	14	4	—	—	45
30/6/43..	10	3	—	—	12	—	9	1	—	1	36
30/6/44..	6	4	—	2	5	6	41	10	—	1	75
30/6/45..	180	207	3	4	126	168	420	122	79	71	1,380
30/6/46..	37	40	3	3	8	30	66	20	—	10	217
30/6/47..	10	16	1	4	6	13	16	10	—	3	79

TABLE 40.—ACUTE POLIOMYELITIS.
DISTRIBUTION OF CASES AND DEATHS—BY RACE AND AGE—REPORTED DURING THE YEAR ENDED 30TH JUNE, 1947.

PROVINCE.	CASES.					DEATHS.				
	AGE.					AGE.				
	Total Cases.					Incidence Rate per 100,000 of Population.				
	Under 1 Year.	1-4.	5-9.	10-19.	20*.	Under 1 Year.	1-4.	5-9.	10-19.	20*.
EUROPEAN.										
Cape (excluding Transkei).....	—	6	1	1	2	10	1-17	—	—	—
Transkei.....	—	—	1	—	—	1	5-94	—	—	—
Natal.....	—	1	1	2	2	6	2-53	—	—	—
Transvaal.....	1	5	6	3	1	16	1-51	3	2	5
Orange Free State.....	—	—	—	—	—	—	—	—	—	—
UNION.....	1	12	9	6	5	33	1-39	3	2	—
NATIVE.										
Cape (excluding Transkei).....	—	3	1	2	1	7	0-65	—	—	—
Transkei.....	2	2	—	—	—	4	0-32	—	—	—
Natal.....	—	4	2	—	3	9	0-53	—	1	—
Transvaal.....	—	2	2	4	1	9	0-29	—	—	—
Orange Free State.....	—	—	—	2	1	3	0-45	—	2	—
UNION.....	2	11	5	8	6	32	0-41	—	3	—
ASIATIC.										
Cape (excluding Transkei).....	—	—	—	—	—	—	—	—	—	—
Transkei.....	—	—	—	—	—	—	—	—	—	—
Natal.....	—	1	1	1	—	3	1-29	—	—	—
Transvaal.....	—	—	—	—	—	—	—	—	—	—
Orange Free State.....	—	—	—	—	—	—	—	—	—	—
UNION.....	—	1	1	1	—	3	1-05	—	—	—
MIXED AND OTHER COLOURED RACES.										
Cape (excluding Transkei).....	1	4	—	4	—	9	1-10	—	—	—
Transkei.....	—	—	—	—	—	—	—	—	—	—
Natal.....	—	—	—	1	—	1	4-02	—	—	—
Transvaal.....	—	—	1	—	—	1	1-67	—	—	—
Orange Free State.....	—	—	—	—	—	—	—	—	—	—
UNION.....	1	4	1	5	—	11	1-18	—	—	—
TOTAL—ALL RACES.										
Cape (excluding Transkei).....	1	13	2	7	3	26	0-94	—	—	—
Transkei.....	2	2	1	—	—	5	0-39	—	—	—
Natal.....	—	6	4	4	5	19	0-86	—	1	—
Transvaal.....	1	7	9	7	2	26	0-61	3	2	—
Orange Free State.....	—	—	—	2	1	3	0-34	—	2	—
UNION.....	4	28	16	20	11	79	0-69	3	5	—

* Includes cases where the age is not stated.

TABLE 42.—ACUTE POLIOMYELITIS.

DISTRIBUTION OF CASES AND DEATHS BY RACE AND AREA.

REPORTED DURING THE YEAR ENDED 30TH JUNE, 1947.

PROVINCE.	CASES.				DEATHS.			
	Urban.	Rural.	Total.	Incidence Rate per 100,000 of Popu-lation.	Urban.	Rural.	Total.	Death Rate per 100,000 of Popu-lation.
I.—EUROPEAN.								
Cape (excluding Transkei).....	6	4	10	1·17	—	—	—	—
Transkei.....	1	—	1	5·94	—	—	—	—
Natal.....	5	1	6	2·53	—	—	—	—
Transvaal.....	14	2	16	1·51	3	2	5	0·47
Orange Free State.....	—	—	—	—	—	—	—	—
TOTAL.....	26	7	33	1·39	3	2	5	0·21
II.—NATIVE.								
Cape (excluding Transkei).....	3	4	7	0·65	—	—	—	—
Transkei.....	—	4	4	0·32	—	—	—	—
Natal.....	4	5	9	0·53	—	1	1	0·06
Transvaal.....	4	5	9	0·29	—	—	—	—
Orange Free State.....	1	2	3	0·45	—	2	2	0·30
TOTAL.....	12	20	32	0·41	—	3	3	0·04
III.—ASIATIC.								
Cape (excluding Transkei).....	—	—	—	—	—	—	—	—
Transkei.....	—	—	—	—	—	—	—	—
Natal.....	2	1	3	1·29	—	—	—	—
Transvaal.....	—	—	—	—	—	—	—	—
Orange Free State.....	—	—	—	—	—	—	—	—
TOTAL.....	2	1	3	1·05	—	—	—	—
IV.—COLOURED.								
Cape (excluding Transkei).....	5	4	9	1·10	1	—	1	0·12
Transkei.....	—	—	—	—	—	—	—	—
Natal.....	1	—	1	4·02	—	—	—	—
Transvaal.....	1	—	1	1·67	—	—	—	—
Orange Free State.....	—	—	—	—	—	—	—	—
TOTAL.....	7	4	11	1·18	1	—	1	0·11
V.—TOTAL (ALL RACES).								
Cape (excluding Transkei).....	14	12	26	0·94	1	—	1	0·04
Transkei.....	1	4	5	0·39	—	—	—	—
Natal.....	12	7	19	0·86	—	1	1	0·05
Transvaal.....	19	7	26	0·61	3	2	5	0·12
Orange Free State.....	1	2	3	0·34	—	2	2	0·23
TOTAL.....	47	32	79	0·69	4	5	9	0·08

Amoebiasis.—The incidence of this disease in Natal, where it was made notifiable from 1st January, 1945, is shown in the following table :—

Period.	No. reported in whole of Natal in-cluding Durban.	No. reported in Durban only.	No. of Deaths.
Six months ending 30/6/45.....	1,935	1,376	169
Year ending 30/6/36..	6,637	4,410	198
Year ending 30/6/47..	5,131	3,311	192

It is noteworthy that a very large proportion, namely 64·5 per cent. of the total number of cases were reported from Durban itself. The next highest number of cases were reported from the following districts, Pinetown 221, Nongoma 208, Umbumbulu 188, Umgeni 155, and Inanda 144. The large number notified from Nongoma is probably due to the existence there of a mission hospital where facilities for the diagnosis of this disease are better than in other country districts. The other districts mentioned are within easy reach of Durban or Pietermaritzburg. Suspected cases of amoebiasis can therefore easily be transferred to hospitals there and the diagnosis confirmed and notified. It must be pointed out that the notification of any infectious disease depends on accurate diagnosis and to arrive at a

diagnosis of amoebiasis laboratory facilities are necessary. Such facilities exist in Durban, Pietermaritzburg and Nongoma but records of cases notified from areas remote from these laboratories must be accepted with considerable reserve and are of very little statistical value.

Amoebiasis is prevalent in countries with tropical or sub-tropical climates where warmth and humidity tend to favour the survival of the causal parasite. The climate in the coastal districts of Natal is favourable to the spread of the disease. The essential factor however for the occurrence of amoebiasis is the ingestion of the parasite in its encysted state. The lack of proper sanitary facilities in many places coupled with unhygienic habits are therefore factors of the greatest importance in the spread of this disease.

Diphtheria.—In successive annual reports the Department has repeatedly emphasised the need for protection of children against diphtheria by active immunisation. Last year's report stated that "until local authorities and parents awake to their responsibilities to the children of the nation the deplorable toll of avoidable death and disease will go on and South Africa will compare unfavourably with other civilized countries in this respect."

The repeated warnings and all the propaganda on the subject which have been issued by this Department, as well as by other bodies, have served in some small measure to make the public more conscious of its duties in this connection. It is, however, clear that a very large body of public opinion is still not fully alive to the position as the response to offers to immunise children at municipal and other clinics is still very disappointing. This somewhat discouraging conclusion is supported by the views of health workers in different parts of the country. For example, the Deputy Chief Health Officer of the South African Railways Administration writes as follows:—

"Much of the high incidence of diphtheria is attributed to the indifference of some parents who although being fully aware of the free immunisation facilities offered by the Administration fail to avail themselves thereof. Usually these people will seek protection against the disease when a member of the family or neighbour is stricken with it. Propaganda made by Health and Welfare staff therefore does not always meet with success. It is learnt that Health organisations of local authorities experience the same difficulties."

At the same time the Deputy Chief Health Officer for Natal, commenting on the fact that 562 cases of this entirely preventable disease were reported in his area during the year under review, remarks as follows:—

"Diphtheria showed a further decrease as indicated but the incidence especially in urban areas is considered far from satisfactory. Of the total, 379 or nearly 66 per cent. were notified from Durban and Pietermaritzburg. This is one of the diseases of childhood which is readily preventable and more active steps should be taken by local authorities to ensure a higher immunisation rate amongst the susceptible child population. Until 75 per cent. of these are immunised no appreciable reduction in the number of cases can be looked for."

The Department has done all it can to encourage the immunisation of children against diphtheria. It will continue to do so in every possible way, and particularly through its newly created Division of Nutrition and Health Propaganda. Prior to 1946 the Department refunded to local authorities one half of the cost of material for this purpose. In order still further to encourage immunisation a further concession was made in the Public Health Amendment Act of 1946 (No. 51 of 1946) by which the Department now refunds the entire cost of this material to local authorities. It is hoped that this will have the effect of stimulating those bodies to greater activity in this connection. If local authorities and the public do not take more advantage of the facilities which are provided

it may become necessary for the government to consider the advisability of introducing compulsory immunisation against diphtheria, as has been done in other parts of the world with excellent results. This matter is at present under consideration by a committee of the National Health Council which discussed the question at the meeting of the Council in Bloemfontein in August, 1947, and referred it to a committee for further consideration.

TABLE 43.—INCIDENCE OF DEATHS FROM DIPHTHERIA PER 100,000 OF POPULATION—EUROPEANS.

Year.	Rate per 100,000 of Population.	Year.	Rate per 100,000 of Population.
1920.....	12.33	1933.....	4.66
1921.....	11.17	1934.....	6.27
1922.....	14.01	1935.....	3.95
1923.....	15.51	1936.....	4.48
1924.....	10.93	1937.....	5.87
1925.....	14.23	1938.....	6.53
1926.....	6.56	1939.....	6.76
1927.....	6.32	1940.....	6.97
1928.....	8.97	1941.....	5.92
1929.....	5.83	1942.....	7.22
1930.....	8.18	1943.....	6.71
1931.....	7.05	1944.....	6.17
1932.....	4.68	1945.....	4.80

Relapsing Fever.—During the year under review an extensive outbreak of relapsing fever occurred on one of the base metal mines in Griqualand West. The disease has been known in the Union for many years and about ten years ago the base metal mines of Griqualand West were the scene of a very large outbreak. Since then relapsing fever has been reported from various parts of the country and has been endemic in certain areas, particularly parts of the Northern Transvaal.

The epidemic in the summer of 1946-47 in Griqualand West occurred among Native labourers who were living in small mine compounds scattered over a fairly extensive area. The disease had a sudden onset with high temperature and most of the cases had pulmonary symptoms. It was not at first recognised as relapsing fever and, in fact, was diagnosed initially as a virulent type of influenza. After further investigations, however, the diagnosis of relapsing fever was made and was confirmed by examination of some of the patient's blood. As is always the case with this disease, once the diagnosis was made the outbreak was rapidly brought under control. Patients were treated with intravenous injections of the organic arsenical preparations, commonly used for syphilis, which have a specific effect in curing relapsing fever very rapidly. Measures were taken to destroy the tampan ticks (*Ornithodoros moubata*), which are the vectors of the disease, by spraying the crevices in which they were harbouring in the huts and by eliminating such crevices. A longer range program was also instituted for entirely doing away with tick harbourage in the compounds by the construction of new huts of a better type.

The tampan tick, *Ornithodoros moubata*, which is the vector of this disease has habits unlike those of other ticks and very like those of the bed-bug. Instead of living on its animal host, as other ticks do, the tampan tick lives in crevices in wood, in cement floors or in walls and emerges at night to feed on its sleeping host. Native huts and compounds which are badly constructed or dilapidated afford plentiful harbourage for these ticks and if such premises become infested with ticks which are infected with the spirochaete of relapsing fever an outbreak of the disease is inevitable. As previously indicated, such an outbreak can readily be brought under control by destroying the ticks either by chemical means or flaming crevices in concrete floors with a blow-lamp and by treating the cases with arsenical preparations. The only method, however, of preventing such an outbreak is to house all employees and their families in quarters of such construction that they

TABLE 44.—DIPHThERIA—DISTRIBUTION OF CASES AND DEATHS—BY RACE AND AGE—REPORTED DURING THE YEAR ENDED 30TH JUNE, 1947.

PROVINCE.	CASES.					DEATHS.						
	AGE GROUPS.											
	Under 1 Year.	1-4.	5-9.	10 +.	Total.*	Incidence Rate per 100,000 of Popu- lation.	Under 1 Year.	1-4.	5-9.	10 +.	Total.*	Incidence Rate per 100,000 of Popu- lation.
EUROPEAN.												
Cape (excluding Transkei)..	15	141	94	69	319	37·36	2	7	2	—	11	1·29
Transkei.....	—	2	—	2	4	23·76	—	1	—	—	1	5·94
Natal.....	10	60	73	115	258	109·00	—	5	1	2	8	3·38
Transvaal.....	26	196	135	126	483	45·43	3	13	3	4	23	2·16
Orange Free State.....	—	21	10	7	38	18·80	—	—	—	—	—	—
UNION.....	51	420	312	319	1,102	46·45	5	26	6	6	43	1·81
NATIVE.												
Cape (excluding Transkei)..	7	32	13	18	70	6·46	1	4	1	2	8	0·74
Transkei.....	—	8	3	11	22	1·77	—	—	—	—	—	—
Natal.....	37	121	42	62	262	15·38	8	17	1	1	27	1·58
Transvaal.....	38	164	105	126	433	13·92	9	23	8	3	43	1·38
Orange Free State.....	3	20	14	8	45	6·81	1	3	3	—	7	1·06
UNION.....	85	345	177	225	832	10·66	19	47	13	6	85	1·09
ASIATIC.												
Cape (excluding Transkei)..	1	1	—	1	3	19·81	—	—	—	—	—	—
Transkei.....	—	—	—	—	—	—	—	—	—	—	—	—
Natal.....	8	30	16	29	83	35·73	2	5	5	—	12	5·17
Transvaal.....	2	10	15	8	35	92·70	—	2	—	—	2	5·30
Orange Free State.....	—	—	—	—	—	—	—	—	—	—	—	—
UNION.....	11	41	31	38	121	42·42	2	7	5	—	14	4·91
MIXED AND OTHER COLOURED RACES.												
Cape (excluding Transkei)..	32	111	30	51	224	27·41	3	11	1	1	16	1·96
Transkei.....	—	—	1	2	3	24·50	—	—	—	—	—	—
Natal.....	1	13	4	9	27	108·46	1	2	1	—	4	16·07
Transvaal.....	4	19	4	7	34	56·68	—	2	—	—	2	3·33
Orange Free State.....	—	2	—	—	2	14·23	—	1	—	—	1	7·12
UNION.....	37	145	39	69	290	31·23	4	16	2	1	23	2·48
TOTAL—ALL RACES.												
Cape (excluding Transkei)..	55	285	137	139	616	22·24	6	22	4	3	35	1·26
Transkei.....	—	10	4	15	24	5·80	—	1	—	—	1	0·03
Natal.....	56	224	135	215	608	27·66	11	29	8	3	51	2·32
Transvaal.....	70	389	259	267	962	22·52	12	40	11	7	70	1·64
Orange Free State.....	3	43	24	15	85	9·70	1	4	3	—	8	0·91
UNION.....	184	951	559	651	2,345	20·58	30	96	26	13	165	1·45

* Includes cases where the age is not stated.

do not afford any harbourage for ticks. Employers of large labour forces, whether mining, industrial or agricultural, and particularly those in the hotter and drier parts of the country, such as the Northern Transvaal and Griqualand West, should ensure that their labourers are suitably housed in this regard, and in the event of an outbreak of an acute febrile disease among their employee, the possibility of relapsing fever should always be borne in mind.

Typhoid or Enteric Fever.—In every annual report typhoid fever has been discussed at length but the continued prevalence of the disease shows that either the causes and methods of spread are not known and understood by the public or that those responsible under the Public Health Act for prevention of spread are not fully aware and appreciative of the implications of their duties. In typhoid fever, perhaps more than in any other disease, cleanliness, of food and of those who handle the food is of paramount importance in the prevention of the dissemination of the causative bacteria. These bacteria can only be derived from “carriers” or from persons who handle or prepare food while suffering from a mild attack of the disease. If the excreta of such persons is not properly disposed or if their hands are not washed thoroughly before handling food or food containers they are liable to spread

the disease to others. “Typhoid Carriers” are persons who, though not actually suffering from typhoid fever, harbour the bacteria and excrete them in their faeces or urine. They have usually had the disease previously. These people are a menace as has frequently been demonstrated by the fact that in the great majority of typhoid outbreaks where it has been possible to trace the source of infection, this has been found to be a “carrier”. The classical example of a “Typhoid Carrier” was the notorious “Typhoid Mary” an unfortunate woman whose occupation happened to be that of a cook and who was responsible for a great many typhoid outbreaks in different parts of the United States of America, until she was finally brought under control by the Health authorities. Although South Africa has fortunately not as yet produced a “Typhoid Mary” very many outbreaks have been traced to Native dairy workers or other food handlers. In fact, having regard to the uncleanly habits of many Natives, the primitive conditions under which dairying is sometimes carried out and the fact that milk is an excellent medium for the growth of bacteria, so that if they are introduced into it, typhoid bacteria will multiply rapidly, the milk boy who happens to be a typhoid carrier is probably the greatest cause of the spread of the disease in South Africa to-day.

TABLE 45.—TYPHOID OR ENTERIC FEVER.

DISTRIBUTION OF CASES AND DEATHS.

RACE AND AREA—REPORTED DURING THE YEAR ENDED 30TH JUNE, 1947.

PROVINCE.	CASES.				DEATHS.			
	Urban.	Rural.	Total.	Incidence Rate per 100,000 of Population.	Urban.	Rural.	Total.	Death Rate per 100,000 of Population.
I.—EUROPEAN.								
Cape (excluding Transkei).....	144	45	189	22·13	11	—	11	1·29
Transkei.....	4	3	7	41·58	—	—	—	—
Natal.....	44	17	61	25·77	1	1	2	0·84
Transvaal.....	225	64	289	27·18	15	1	16	1·51
Orange Free State.....	43	17	60	29·69	1	—	1	0·49
TOTAL.....	460	146	606	25·54	28	2	30	1·26
II.—NATIVE.								
Cape (excluding Transkei).....	135	167	302	27·86	20	4	24	2·21
Transkei.....	61	195	256	20·54	1	—	1	0·08
Natal.....	297	672	969	56·87	71	50	121	7·10
Transvaal.....	411	237	648	20·83	79	6	85	2·73
Orange Free State.....	127	228	355	53·75	7	5	12	1·82
TOTAL.....	1,031	1,499	2,530	32·41	178	65	243	3·11
III.—ASIATIC.								
Cape (excluding Transkei).....	3	10	13	85·84	—	—	—	—
Transkei.....	—	2	2	—	—	—	—	—
Natal.....	137	218	355	152·81	21	6	27	11·62
Transvaal.....	21	—	21	55·62	2	—	2	5·30
Orange Free State.....	—	—	—	—	—	—	—	—
TOTAL.....	161	230	391	137·07	23	6	29	10·17
IV.—COLOURED.								
Cape (excluding Transkei).....	246	139	385	47·11	29	2	31	3·79
Transkei.....	5	31	86	65·33	—	—	—	—
Natal.....	47	23	70	281·18	2	1	3	12·05
Transvaal.....	14	13	27	45·01	1	—	1	1·67
Orange Free State.....	4	—	4	28·46	—	—	—	—
TOTAL.....	316	206	572	52·99	32	3	35	3·77
V.—TOTAL (ALL RACES).								
Cape (excluding Transkei).....	528	361	889	32·09	60	6	66	2·38
Transkei.....	70	201	271	21·25	1	—	1	0·08
Natal.....	525	930	1,455	66·20	95	58	153	6·96
Transvaal.....	671	314	985	23·06	97	7	104	2·43
Orange Free State.....	174	245	419	47·80	8	5	13	1·48
TOTAL.....	1,968	2,051	4,019	35·28	261	76	337	2·96

Enteric fever, which includes typhoid and the paratyphoid groups of fevers, can only be acquired by consuming food or drink, usually milk or water, which has been contaminated with human faeces or urine. This elementary fact should be known to all and the necessary steps for the prevention of spread are obvious yet it is often found that food handlers are not given soap, water, hand basin and clean towel to clean their hands before touching food. This applies to dairies, hotels, boarding houses, cafés, restaurants and even private homes. Too often latrine accommodation especially for Natives, is not adequate or suitable so that excreta can be so disposed of that it does not or cannot infect human food or drink. Flies may still form a serious carrier of infection from excreta to food but they can now be relatively easily controlled by the use of D.D.T. in the house or refuse receptacles and at all other points where flies collect or breed.

In rural areas flies still breed freely and on farms, from where much of the towns' milk and food supplies come, latrine accommodation especially for Native employees is usually totally inadequate. As has previously been mentioned in a number of outbreaks the healthy "carrier" of virulent typhoid bacilli has been proved to be the source of infection. If the "carrier" had washed his hands properly before handling food or milk infection would probably not have been transferred. As an additional safeguard employees in the food trades especially in the dairy industry should be tested with a view to finding "carriers" and removing them from dangerous occupations.

Further to safeguard the milk drinking public and especially children, who should drink more milk than they do now, milk should be subjected to pasteurisation or, if this is impossible, it should be boiled and then immediately

cooled as rapidly as possible. Another step in the protection of the individual can be taken by inoculation with anti-typhoid vaccine. This protection is usually only given to those in special danger of infection. It does not remove the primary cause of typhoid fever. It should therefore be regarded as a measure to be used in the face of an outbreak or when the normal methods for the prevention of contamination of food and drink have failed or, owing to difficult conditions such as during a military campaign, there is the likelihood that they may fail.

During the year no very large outbreaks were reported although a minor milk borne epidemic occurred in Benoni. The Deputy Chief Health Officer, Natal reports 1,435 cases compared with 1,689 the previous year in his area and writes that "the number of cases notified was appreciably less than for the preceding 12 months. While this is gratifying there is no cause for congratulation or com-

placency for the decrease cannot be ascribed to any improvement in the factors mentioned in last year's report. Where ever possible contacts are immunised in the rural areas but this is recognised as being of temporary value only, leaving the more important factors, viz. lack of proper sanitary facilities and polluted water supplies untouched."

The Deputy Chief Health Officer, Railways in reporting 93 cases compared with 102 last year in Railway staff and dependants remarks as follows :—

"the majority of the typhoid fever cases occurred in rural areas or small towns where the standard of hygiene and sanitation is not satisfactory from a health point of view."

The occurrence of typhoid in the country is reflected in Tables Nos. 45 and 46.

TABLE 46.—TYPHOID OR ENTERIC FEVER: NOTIFICATIONS AND INCIDENCE IN URBAN LOCAL AUTHORITY AREAS IN WHICH TEN OR MORE CASES WERE NOTIFIED DURING THE YEAR ENDED 30TH JUNE 1947 (EXCLUDING CASES RETURNED AS "IMPORTED").

LOCAL AUTHORITY.	Notifications.					Incidence Rate per 1,000 of Population.				
	Euro-pean.	Native.	Asiatic.	Col-oured.	Total.	Euro-pean.	Native.	Asiatic.	Col-oured.	Total.
Aliwal North Municipality.....	4	20	—	—	24	1.49	4.10	—	—	2.74
Burghersdorp Municipality.....	23	—	—	—	23	11.20	—	—	—	4.30
Cape Town Municipality.....	52	23	2	156	233	0.29	0.73	0.33	0.94	0.61
Cradock Municipality.....	4	11	—	—	15	0.89	2.01	—	—	1.15
East London Municipality.....	9	3	—	—	12	0.23	0.10	—	—	0.16
Kingwilliamstown Municipality.....	4	4	—	2	10	0.65	1.09	—	1.52	0.89
Lady Frere Municipality.....	—	10	—	—	10	—	25.19	—	—	13.50
Paarl Municipality.....	6	—	—	5	11	0.54	—	—	0.37	0.40
Queenstown Municipality.....	6	24	1	21	52	0.73	1.82	11.11	9.73	2.20
Prieska Municipality.....	—	—	—	10	10	—	—	—	7.10	2.91
Matatiele Municipality.....	—	13	—	2	15	—	9.12	—	6.37	5.55
Umtata Municipality.....	2	50	—	3	55	0.75	12.69	—	3.95	7.48
Durban Municipality.....	16	128	77	43	264	0.14	1.23	0.72	3.97	0.78
Ladysmith (N) Municipality.....	5	12	—	—	17	0.99	2.20	—	—	1.20
Edendale Local Health Committee.....	—	13	5	—	18	—	1.07	3.52	—	1.28
Utrecht Municipality.....	1	18	2	—	21	1.37	6.30	133.33	—	5.57
Alexandra Health Council.....	—	12	—	—	12	—	0.24	—	—	0.23
Benoni Municipality.....	47	24	1	—	72	1.93	0.52	0.88	—	0.97
Boksburg Municipality.....	24	6	—	—	30	1.17	0.19	—	—	0.56
Elsburg Village Council.....	3	12	—	—	15	2.26	14.51	—	—	6.80
Germiston Municipality.....	4	29	—	2	35	0.10	0.46	—	1.30	0.34
Groot Marico Health Council.....	8	10	5	—	23	47.90	19.84	74.63	—	30.63
Heidelberg Municipality.....	—	14	—	—	14	—	3.41	—	—	1.96
Hercules Municipality.....	5	18	2	—	25	0.48	0.61	3.18	—	0.60
Johannesburg Municipality.....	63	181	8	7	259	0.20	0.75	0.53	0.30	0.43
Lydenburg Municipality.....	6	7	—	—	13	2.79	4.51	—	—	3.38
Pretoria Municipality.....	12	6	—	1	19	0.11	0.11	—	0.36	0.11
Roodepoort-Maraiburg Municipality.....	6	12	—	—	18	0.26	0.25	—	—	0.25
Springs Municipality.....	3	11	1	—	15	0.12	0.13	1.34	—	0.13
Vereeniging Municipality.....	6	6	—	—	12	0.51	0.22	—	—	0.30
Bloemfontein Municipality.....	5	4	—	1	10	0.17	0.11	—	0.51	0.15
Frankfort Municipality.....	—	18	—	—	18	—	8.46	—	—	4.94
Kroonstad Municipality.....	14	30	—	—	44	1.81	2.36	—	—	2.09
Memel Municipality.....	—	20	—	—	20	—	38.99	—	—	22.47
Oranjeville Village Management Board....	—	19	—	—	19	—	71.16	—	—	44.71
Parys Municipality.....	15	5	—	2	22	4.59	1.63	—	15.63	3.40

(5) LABORATORIES.

The pathological laboratory services provided by the Government, either directly through the Departmental laboratories or indirectly through the South African Institute for Medical Research, constitute a very important part of the health services of the country. The Department has its own laboratories at Cape Town, Durban and East London, serving the Cape Western area, Natal and the Border and Transkei Districts respectively, while the remaining regions are served by the South African Institute for Medical Research at Johannesburg or its branches at Bloemfontein and Port Elizabeth.

The services rendered are of great importance in connection with the diagnosis and control of infectious diseases and the detection of carriers of infectious disease, in addition to matters of general hygiene such as the bacteriological examination of drinking waters and of foods for human consumption. The laboratories also carry out

the most important function of manufacturing vaccines and sera for prophylactic and therapeutic use. All the calf lymph vaccine for vaccination against small-pox and all the anti-rabic vaccine which is used both in the Union and in other neighbouring African territories is manufactured at the Departmental laboratory at Cape Town. The laboratory also prepares chaulmoogra oil preparations for the treatment of leprosy. At the South African Institute for Medical Research a great many vaccines, sera and similar preparations of various sorts are made. These include the substances used for immunization against diphtheria, typhoid and other diseases as well as plague vaccine and serum and cholera vaccine. At the Departmental yellow fever vaccine laboratory at Rietfontein near Johannesburg, all the yellow fever vaccine which is used for the inoculation of travellers leaving the Union by air is manufactured. This laboratory is staffed and run by the South African Institute for Medical Research on behalf of and at the expense of the Department of Health.

TABLE 47 —PATHOLOGICAL LABORATORIES: ANALYSES AND EXAMINATIONS, YEAR ENDED 30TH JUNE, 1947.

Particulars.	Government Laboratories.		South African Institute for Medical Research.			East London Hospital Board.
	Cape Town.	Durban.	Johannesburg.	Port Elizabeth Branch.	Bloemfontein Branch.	East London and Border Pathological Laboratory.
Specimens examined for:—						
(a) Governments Departments:—			(a)	(a)	(a)	—
Agriculture.....	—	—	—	—	—	—
Customs and Excise.....	18	—	—	—	—	—
Defence (and Navy).....	212	657	6,272	922	289	107
Education.....	—	—	—	—	—	—
Finance.....	160	—	—	—	—	—
Health (including Leper Institutions and Mental Hospitals).....	15,746	16,479	103,671	16,600	8,879	23,685
Interior.....	—	2,736	—	—	—	9
Justice (including Prisons).....	184	552	4,955	504	288	82
Mines (including Miners' Phthisis).....	—	—	21,252	—	50	—
Native Affairs.....	—	1	—	—	—	—
Posts and Telegraphs.....	—	—	—	—	—	—
Public Works.....	—	—	—	(a)	(a)	—
S.A. Railways and Harbours.....	212	3,247	(a)	(a)	(a)	—
Others.....	45	—	519	142	99	95
TOTALS.....	16,577	23,672	136,669	18,168	9,605	23,978
(b) General Hospitals (Provincial).....	3,835	26,047	144,106	21,941	6,629	—
(c) Local Authorities.....	59,298	16,508	85,316	24,605	3,217	—
(d) Medical Practitioners and members of the public.....	17,104	34,009	35,945	2,850	—	—
(e) Other Governments and Administrations.....	234	445	9,166	—	—	—
(f) Others.....	—	—	28,261	—	—	—
TOTALS.....	80,471	77,009	302,794	49,396	9,846	—
Manufactures and Issues:—						
Autogenous Vaccines.....c.c.	50	—	863	97	62	—
Bacterial Vaccines.....c.c.	—	—	1,187,169	(b)	(b)	—
Tuberculin Dilutions.....	—	—	6,856	62	—	—
Sera (various) Bacterial Filtrates.....c.c.	—	—	436,370	(b)	(b)	—
Sera (amps).....	540	—	102,213	—	—	—
Anti-rabic Vaccine.....c.c.	20,820	—	—	—	—	—
Chaulmoogra Oil Preparations.....litres	412	—	—	—	—	—
Calf Lymph (Issued) tubes.....	5,403,083	—	605,246	1,450	4,300	—
Chick Membrane Lymph (on hand).....	—	—	—	—	—	—
Other (Oral) Doses.....	—	—	16,275	—	—	—
Milk Cultures.....bottles	—	—	335	(b)	(b)	—
Human blood processed:—						
Wet bottles prepared for whole blood.....bottles	2,619	—	—	—	—	—
Scrum separated from blood.....litres	412	—	—	—	—	—

(a) Included under "others". (b) Included in figures under Johannesburg.

It is perhaps necessary to explain that the Government chemical laboratories do not fall under the Department of Health but under the Department of Agriculture. These laboratories do, however, serve a most important function from the point of view of the health service as they carry out the chemical examinations of food, drugs and water for the Department of Health and for local authorities.

Departmental Pathological Laboratories.

With the return to normal peace-time conditions the work undertaken by the government pathological laboratories has greatly increased and the service provided has been expanded to meet new commitments of the Department, such as the opening of health centres. To meet adequately the various needs much re-organisation has been necessary. Plans for such re-organisation have been elaborated and their implementation has been commenced, but several years must elapse before it can be completed.

There is a dearth of fully trained and experienced technicians in pathology. This shortage has been acutely felt by the government pathological laboratory service particularly as post-war expansion has been complicated by the retiral or resignation of trained technical staff. The position has also been aggravated by the fact that the government pathological laboratories have in the past had no systematic plan for the training of technicians.

Clearly recognising the urgent need for fully trained technicians, the Department has now instituted a training scheme. Thirty posts for "trainee" second grade technicians have been created. Half of these posts are to be for women. Twenty of the posts have been allocated to Cape Town and ten to Durban.

It is generally agreed that it takes a period of about five years to train technicians reasonably fully. The Department's plan is, by means of organised theoretical and practical classes, to give one year of basic training in which the trainees will be given no routine duties in the laboratory, but will concentrate purely on their training. At the end of this period they should be capable, under adequate supervision, of performing numerous routine

tasks but they will be lacking greatly in experience. However, by posting them in rotation for suitable periods to the various laboratory sections, it is hoped that in a few years they will prove well trained technicians in all branches of the work.

Chemistry to-day is basic to all branches of pathology and it is desirable that all trainee technicians should have matriculated with chemistry as a subject. Many schools do not, however, give courses in chemistry, particularly girls' schools. It may be necessary to arrange for trainee technicians to attend classes in chemistry at technical colleges as it will be quite impossible for the laboratory to give organised classes in elementary chemistry.

The South African Medical and Dental Council is contemplating the registration of all pathological laboratory technicians. To be placed on the register, technicians will have to have suitable qualifications and prove that they are adequately trained in their craft.

The present accommodation of the pathological laboratory at Cape Town is unsuitable and inadequate. Plans, however, have been drawn for additions and alterations which, when carried out, will provide adequate accommodation for present needs and the likely needs for the next few years. These plans have been authorised and the money for the work voted. It is hoped that the improvements will be completed in the coming year.

Much of the equipment possessed at present by the laboratory is old, worn and of an obsolete pattern and inadequate for the present needs. Failure to make any replacements during the war years has aggravated the position. Orders for apparatus and supplies to re-equip the laboratory on a modern and adequate scale have been drawn up, authorised and the necessary tenders called for. Owing to world shortages, however, delivery is likely to be very slow and extended over two or more years.

All reserves of consumable stores were exhausted during the war and great difficulty has been experienced in obtaining replenishments. Orders for necessary stores have been placed and although there are considerable

delays in delivery, the position is now easing. Prices of stores and equipment have very greatly increased and are often several times higher than pre-war prices.

All technical methods employed by the Departmental laboratories have been reviewed. New and improved methods consequent upon the continued progress of medical science are constantly being introduced. Many of these new methods are more exact and elaborate than the older and less reliable methods, and their adoption has therefore caused marked increase in the time which has to be spent on the work. However, the resultant improved standards of accuracy have more than justified the extra effort.

The desirability of employing standardised methods using standardised reagents in mass routine work by the various government pathological laboratories has been considered and it is hoped that such a programme will soon be elaborated and adopted. This should make results from the different laboratories readily comparable and ultimately lead to greater efficiency and economy.

The appointment of a Senior Assistant Pathologist to the Durban laboratory in April, 1947, and the prospective appointment of two assistant pathologists, made it possible to initiate steps for the re-organisation of this laboratory into six sections, namely, the routine bacteriological, serological, histopathological, biochemical and haematological, medico-legal and training sections. The development of the laboratory on this basis will provide the facilities necessary for meeting the increasing demands for services from hospitals, local authorities and medical practitioners.

The Durban laboratory staff, in consultation with the Senior Government Pathologist, has taken an active part in certain aspects of the training of health assistants at the Training Scheme for Health Personnel. Selected health assistants have been trained in clinical side room work.

Arrangements are being made for the East London and Border Pathological Laboratory, which for many years has been under the control of the hospital board at East London, to be transferred to this Department at an early date. This laboratory will provide services for the hospitals, local authorities and, as there are no private pathologists practising in the area, medical practitioners in this region. As a step in this direction another Senior Pathologist, Dr. W. G. Davis, was appointed to the Department and assumed duty at East London on 11th April 1947, his whole-time services being placed at the disposal of the Hospital Board.

Biological Control Section.

The Biological Control Laboratory, which was previously an independent entity, has now been absorbed as one of the main sections of the Cape Town Pathological Laboratory.

The amalgamation of the two laboratories should lead to greater economy and efficiency. During the war, owing to lack of staff, the Biological Control Laboratory functioned only to a very limited degree. Since the end of the war it has been necessary to curtail its services still further owing to the general shortage of trained technicians and the necessity of employing technicians from this section on work of a more urgent nature. It is, however, hoped next year, as more technical staff become available, to increase the activities of this section. The control of therapeutic substances under the Therapeutic Substances Regulations by means of biological assays of samples of such substances imported into or manufactured in the Union is most important in the interests of health, particularly now that antibiotics, such as penicillin, are being so extensively used.

Blood Transfusion.

During the war years the Union Health Department, through the Government Pathological Laboratory at Cape Town, as a war emergency measure undertook to process blood serum and provide sterile containers with anticoagu-

lent fluid for the Cape Peninsula Blood Transfusion Society. The Government Pathological Laboratory was able to undertake the work during the war years because the Biological Control Laboratory had virtually closed down. The conditions under which the work was carried out were not entirely satisfactory, but were justifiable at the time as a temporary expedient because of the grave emergency conditions then prevailing.

At the end of the war it was the intention of the Society to organise its own laboratory services. This scheme has, however, not been found to be practicable. There is no other laboratory at present in the Cape able or willing to undertake the work. The service is a most important and essential one to the hospitals and the Department has been requested to continue the work. The provision of a laboratory service to the Cape Blood Transfusion Society is not a normal peace time function of the Department as the blood and blood products are chiefly used in the treatment of patients in general and private hospitals and the provision of a general hospital service is the responsibility of the Provincial Administration.

Since the end of the war the conditions under which the blood transfusion laboratory service has operated have become more difficult because the laboratory has reverted to its normal full peace-time function, the equipment employed on blood transfusion work is urgently required for the normal laboratory purposes for which it was originally bought, stores have been depleted and the demands of the Society have increased. The continuance of the service is at present in fact seriously hampering the normal functions of the laboratory under existing conditions. The laboratory is experiencing great difficulty in doing this work because of lack of suitable accommodation, proper and sufficient equipment and stores and trained technical staff.

At a recent meeting called by the Minister of Health between representatives of the Cape Peninsula Blood Transfusion Society, the Cape Hospital Board, the Cape Provincial Administration and the Department, it was decided that the Government Pathological Laboratory should continue to provide the Society with the necessary laboratory services but should charge the Society for these services at an economic tariff rate.

To make provision for this work plans have been drawn to provide suitable accommodation, indents have been drawn up for the necessary equipment and authority sought to recruit the necessary technical staff. The proper organisation of this service will take time but it is hoped that in the next year the service will be placed on an adequate and satisfactory basis.

Chaulmoogra Esters.—Chaulmoogra esters for the treatment of lepers in all the leper hospitals in the Union are processed by the Government Pathological Laboratory, Cape Town, working in conjunction with the Government Chemical Laboratory of the Department of Agriculture. These esters, as previously prepared, proved irritating so that treatment with them was not very popular with the lepers. The Officer in Charge of the Government Chemical Laboratory at Cape Town has, however, taken a special interest in the processing of the oil and has technically so greatly improved the method of processing that the esters are no longer so irritating. The result has been that the treatment is now more welcome to the lepers and the demands for the esters have consequently considerably increased. The laboratory, however, has not been able to keep up with the new demands owing to insufficient accommodation for the stills. Plans have, however, been drawn and authority obtained for the erection of a military hut at the Vaccine Station at Rosebank. This hut will provide ample and suitable accommodation for the processing of all the esters required.

Anti-Rabies Vaccine.—The demand for anti-rabies vaccine has steadily increased and is several times more than it was in the pre-war years. All this vaccine for the Union,

South West Africa and many British African Territories beyond, is manufactured at the Government Pathological Laboratory at Cape Town. Facilities for this work have been adequate but new equipment has been ordered to replace the worn and obsolete equipment and a special room for the work has been built on to the laboratory.

Smallpox Vaccine.—The Vaccine Institute at Rosebank still continues to manufacture very large quantities of smallpox vaccine for the Union, South West Africa and British African territories beyond. The Institute is manufacturing many times more the amount of vaccine than it was originally planned to do and as a result it is at present experiencing many difficulties. The ground is inadequate in size for the number of calves now used and is unsuitably situated in a residential suburban area where ground commands very high prices. As the dairy industry has moved further afield the Institute is now too far from farms for the ready hiring of calves. The ground is urgently needed by the Municipality of Cape Town for the building of a new arterial road and for the canalisation of the river and also by the Cape Hospital Board for the building of a new childrens' hospital. The buildings are old and inadequate, in a poor state of repair and not worth reconstruction. The cold storage machinery and the equipment is old and worn. The breeding of small experimental animals for the Government Pathological Laboratory is carried out at Rosebank and is unsatisfactory because of inadequate and unsuitable conditions.

A new vaccine station is urgently required and was planned before the war. Suitable ground for a new station at Durbanville has now been found. It has been decided to retain the ground at Rosebank to the east of the river and to build a new laboratory there, while an animal farm will be established at Durbanville. Animals will be inoculated at the farm and the material obtained brought into the laboratory for processing. Though the ground to the west of the river is urgently required for the new children's hospital, it cannot be relinquished by the Department until the new farm has been established.

During the war-years it was impossible to obtain glassware for packing the vaccine and all ampoules and capillary tubes had to be manufactured at the Institute from glass tubing—a normally uneconomic proceeding. The position is now improving but it is still impossible always to supply vaccine in the sizes of container often specified.

Medico-Legal Services.—The Government Pathological Laboratory, Cape Town, provides a medico-legal laboratory service to the Cape Province, a consultation service to the Attorney-General of the Cape and the local magistrates, and a medico-legal autopsy service for the Cape Peninsula. With the return to normal peace-time conditions, the number of medico-legal exhibits examined has greatly increased and the consultative service greatly expanded. The laboratory staff has however been able to cope satisfactorily with this work.

The medico-legal section of the Durban laboratory co-operated with the Department of Anatomy of the University of Cape Town in the use of a specialised technique for establishing the personal identity of fragmentary charred remains.

Research Work.—During the year members of the professional staff have been able to carry on a considerable amount of applied research arising out of the routine work.

Dr. Shapiro, Pathologist, who has studied the subject over a period of years has published a paper on "The Limited Value of Microscopy of Lung Tissue in the Diagnosis of Live and Still Births". (Clinical Proceedings No. 4, Vol. 6, June, 1947.)

Dr. Kinnear, Assistant Pathologist, at the request of Dr. Dormer, Chief of the Division of Tuberculosis, has studied the effect of protein by hydrolysates on serum

proteins and on liver function in patients suffering from tuberculosis. It is hoped to publish a paper on this subject shortly.

Mr. Hollow, the Pharmacologist, has studied the application of a physico-chemical method to the microbiological assay of penicillin and the study of the dynamics of disinfectants. His work on this subject has been accepted as a thesis by the University of Stellenbosch for the degree of Doctor of Science.

The typing of all strains of *B. diphtheriae* isolated in the Cape Peninsula is being carried out and nearly 500 cultures have been typed to date.

Attempts are being successfully made to isolate and type strains of influenza virus prevalent in the Cape Peninsula.

It is hoped in the near future to carry out a typing survey of strains of *B. tuberculosis* for the Cape Peninsula. Preliminary studies for this work are now being undertaken.

At the Durban laboratory a number of special investigations were made. An assessment was made of the practicability of using concentration techniques in the routine examination of faeces. This is a matter of considerable importance under the semi-tropical conditions prevailing in Natal. In addition to this a histo-pathological study of the bowel lesions in chronic amoebiasis was undertaken. New methods were adopted to modify and improve laboratory media for the effective isolation of the tubercle bacillus.

Table 47 indicates the amount of work carried out at the two pathological laboratories of the Department at Cape Town and Durban, at the South African Institute for Medical Research, Johannesburg and its branches at Port Elizabeth and Bloemfontein and at the East London and Border Pathological Laboratory.

TABLE 48.—PATHOLOGICAL LABORATORIES: NUMBER OF EXAMINATIONS PERFORMED, 1946-47.

Laboratory.	Work Done on Behalf of Govt. Departments.	Work Done on Behalf of Others.	Total Specimens.
Johannesburg...	136,669	302,794	439,463
Cape Town.....	16,577	80,471	97,048
Durban.....	23,672	77,009	100,681
Port Elizabeth..	18,168	49,396	67,564
East London....	28,973	—	28,973
Bloemfontein....	9,605	9,846	19,451
TOTALS.....	233,664	519,516	753,180

TABLE 49.—PATHOLOGICAL LABORATORIES, 1946-47: NATURE OF EXAMINATIONS PERFORMED.

Laboratory.	Particular Diseases.	General Bacteriological.	Chemical.	Parasitological.	Pathological.	Medico-Legal.
Johannesburg..	320,247	25,158	35,528	10,017	45,644	2,869
Cape Town....	94,233	1,871	123	184	334	303
Durban.....	86,284	7,124	8	5,376	1,548	341
Port Elizabeth.	53,600	3,286	3,711	552	5,974	441
East London..	28,681	34	8	51	199	—
Bloemfontein...	18,976	96	96	64	219	—
TOTALS.....	602,021	37,569	39,474	16,244	53,918	3,954

TABLE 50.—GOVERNMENT VACCINE INSTITUTE, ROSEBANK, CAPE.

Work carried out during the period 1st July, 1946 to 30th June, 1947.

No. of Calves Vaccinated.....	194
No. of Calves successful.....	191
No. of Calves Lymph rejected.....	3
Amount of Lymph obtained from 191 Calves	123,210 e.e.
Average Quantity per successful Calf.....	635 e.e.
Average Number of Tubes per successful Calf	25,400
Average Value per successful Calf @ 2d. per Tube.....	£211 13 4
Total Number of Tubes manufactured during Year ending 30th June, 1946 (Calf Lymph)	4,968,400
Number of Tubes issued during the above Period.....	5,403,083
Value of Lymph manufactured @ 2d. per Tube (Calf Lymph).....	£41,403 6 8
Value of Lymph issued free @ 2d. per Tube	£30,170 13 6
Number of Tubes (approx.) on hand at the end of June, 1946 (Calf Lymph).....	2,811,800
Revenue Received by Sales outside the Union	£10,250 3 10

TABLE 51.—LYMPH ISSUED FREE IN THE UNION FROM 1ST JULY, 1946 TO 30TH JUNE, 1947.

Month.	Cape.	Transvaal.	Natal.	O.F.S.
1946.				
July.....	145,397	181,429	22,778	11,358
August.....	144,411	144,506	42,953	7,239
September.....	119,169	160,599	40,804	6,388
October.....	73,402	187,005	18,029	2,724
November.....	66,132	120,481	34,704	2,624
December.....	19,158	123,511	34,623	2,601
1947.				
January.....	14,530	129,088	30,998	3,010
February.....	18,318	220,015	14,704	3,615
March.....	70,482	205,158	42,804	5,991
April.....	84,629	97,174	39,804	18,813
May.....	346,066	148,300	16,657	15,630
June.....	136,450	208,054	30,404	7,744
TOTAL.....	1,238,144	1,925,320	369,262	87,737

TABLE 52.—LICENCES ISSUED UNDER THE THERAPEUTIC SUBSTANCES REGULATIONS.

Therapeutic Substances.	Manufacturing Licences.			Import Licences.			Research Licences.			Vitamin Permits.		
	Issued 1946-47.	Cancelled 1946-47.	In Force 30/6/47.	Issued 1946-47.	Cancelled 1946-47.	In Force 30/6/47.	Issued 1946-47.	Cancelled 1946-47.	In Force 30/6/47.	Issued 1946-47.	Cancelled 1946-47.	In Force 30/6/47.
Antitoxic and Bacterial Sera.....	—	—	3	—	2	5	—	—	9	—	—	—
Antigens and Bacterial Vaccines..	—	—	14	1	1	12	—	—	9	—	—	—
Arsphenamines and Arsphenamine Derivatives.....	—	—	—	1	—	8	—	—	—	—	—	—
Insulin.....	—	—	—	1	—	8	—	—	—	—	—	—
Pituitary (Post. Lobe) Extract....	—	—	1	2	—	12	—	—	—	—	—	—
Sterilised Surgical Ligatures and Sutures.....	—	—	—	1	2	7	—	—	—	—	—	—
Sex Hormones and Sex Hormone Preparations.....	—	—	1	7	1	17	—	—	—	—	—	—
Vitamins and Vitamin-containing Preparations.....	—	1	4	4	—	10	—	—	—	12	—	32
Antivenomous Sera.....	1	—	1	12	—	13	—	—	—	—	—	—
Penicillins.....	2	—	2	—	—	1	—	—	—	—	—	—

South African Institute for Medical Research.

The South African Institute for Medical Research was established in Johannesburg by the Transvaal Chamber of Mines with financial assistance from the Government over thirty years ago, in fact before the Union Health Department came into being. On the establishment of the Department it made use of the South African Institute for Medical Research to carry out the routine laboratory work, for which the Government is financially responsible, in those areas which were not served by the Department's own laboratories. This work is largely connected with the control of infectious disease, including venereal disease, but also includes other pathological investigations which are carried out both for this and other Government Departments, such as examinations for the Departments of Defence, Police or Prisons, whose staff are entitled to free medical, including laboratory, services. This work is paid for by the Government through the Union Health Department at a fixed rate per specimen investigated. The rate is fixed so as to cover the average cost per investigation and has been altered from time to time in accordance with rising costs.

TABLE 53.—EXAMINATIONS CARRIED OUT UNDER THE THERAPEUTIC SUBSTANCES REGULATIONS, 1946-47.

Biological Product.	Manu- factured in Union.	Imported into Union.	Un- satis- factory.
Arsphenamine and Derivatives	—	6	2
Vitamins and Vitamin Pre- parations.....	—	4	—
Penicillins.....	—	19	—
Others.....	—	1	—
TOTAL.....	—	30	2

TABLE 54.—DISTRICT SURGEONCIES AS AT 30TH JUNE, 1947.

Province.	Whole- time.	Part-time.			Total.
		Whole- time, but Jointly with Local Author- ity or Public Body.	On Inclu- sive Annual Salary.	On Annual Salary with certain Supple- mentary Fees and Allow- ances.	
Cape.....	10	2	—	178	190
Natal.....	3	—	—	46	49
Transvaal.....	21	—	1	80	102
Orange Free State	2	—	—	62	64
Relief Staff.....	2	—	—	—	2
UNION.....	38	2	1	366	407

The thirty-eight whole-time posts are those at Cape Town (3); Durban (3); East London; Port Elizabeth; Pretoria (4); Bronkhorstspuit (2); Johannesburg (4); Pietersburg (3); Bloemfontein (2); Wynberg; Knysna; Heidelberg (Tvl.); Nylstroom (2); Rustenburg (2); Delagtersdrift (District Middelburg, Tvl.); Saldanha Bay; Kimberley; Relief staff (2); Louis Trichardt (2); and Bellville (C.P.).

In 1930 a branch of the South African Institute for Medical Research was opened at Port Elizabeth in order to serve that part of the country and in 1941 another branch was opened at Bloemfontein to serve the Orange Free State and neighbouring areas. The arrangement previously referred to was extended to these areas. It will therefore be seen that the Government laboratory work of a large proportion of the Union, namely, the Transvaal, Orange Free State and Midland area of the Cape Province, is done by the South African Institute for Medical Research and its branches.

The South African Institute for Medical Research is divided into two divisions, namely the routine and the research divisions. Having regard to the fact that the facilities for carrying out medical research work are greater at the South African Institute for Medical Research than at its own pathological laboratories, the Department pays to the Institute a sum of £7,500 a year to enable it to carry out research on behalf of the Government. It is in fact principally in this way that the Department has discharged one of its functions which is mentioned in Section 3 of the Public Health Act, namely, "to promote or carry

out researches and investigations in connection with the prevention and treatment of human diseases". A considerable amount of research of various sorts is, however, carried on by the Department itself, as is described under the heading of Medical Research.

VI.—CURATIVE HEALTH SERVICES.

(1) PATIENTS OUTSIDE HOSPITALS OR NOT ADMITTED TO HOSPITALS.

The provision of curative services to persons in their own homes, at health centres, clinics, or in out-patient departments of hospitals may be divided into two main categories, viz. pauper medical relief which is provided by the State, provincial administrations and local authorities and, secondly, the provision of services by private medical practitioners and dentists to persons other than paupers.

(a) *Pauper Medical Relief.*

(i) *District Surgeons.*

For many years medical attention to paupers of all races has been provided by the district surgeons, either at their surgeries or at the homes of the patients concerned. The district surgeons, who are either part-time or whole-time officers of the Department of Health, act under the instructions of the magistrate of the district who certifies that the persons requiring this attention are paupers. This entitles them to free medical attention by the district surgeon.

In addition to the provision of curative services to paupers district surgeons have a number of other functions. Their other main duties may briefly be classified into three groups, namely, the provision of medical services to certain government employees and their families such as the Police and prison staff who are entitled to free medical attention, secondly the carrying out of medico-legal duties, including doing post-mortems and giving evidence in court, and, thirdly, acting as health officials in those rural areas where there is no established local authority and where the magistrate is consequently the local authority. It is, however, with the provision of pauper medical relief that we are at present concerned.

Table 54 shows the disposition of whole-time and part-time district surgeons in the Union. There has been a further post-war increase in the number of district surgeon posts. On the 30th June, 1947, there was a total of 407 such posts as compared with 395 at the end of the previous year. This increase which represents the creation of two additional whole-time posts, one at Cape Town and one at Pietersburg, and the establishment of 10 more part-time district surgeoncies is an indication of the Department's resolve to provide better medical services especially in outlying areas. Difficulty has, however, been experienced in filling many of the posts in areas where few amenities exist.

It is gratifying to record that the full-time district surgeon establishments, many of which operated under adverse conditions due to the absence of permanent incumbents, have now been brought up to full strength. This group has rendered splendid service, often under the most trying conditions.

Part-time district surgeons have also continued to render very good services and have co-operated with the Department in its endeavour to combat the incidence of venereal diseases. They have realized the necessity for embarking on periodical tours, under Section 4 of Act No. 36 of 1927, to remote portions of their areas. In many cases the carrying out of these tours has called for sacrifice on their part and in some cases considerable discomfort to themselves.

Although no finality regarding the drug allowances of district surgeons was reached during the year under review, it is hoped that this matter will be settled during the ensuing year.

The revival of the district surgeon's post-graduate course, the first since the outbreak of the war, was marked by a display of enthusiasm on the part of those who attended the course held in Johannesburg during July, 1947. The course was well attended and was a great success. It is hoped to hold these courses regularly each year.

(ii) *Health Centres.*

These have been described in some detail under Section IV (b) of this report, viz. "Personal, Preventive Health Services". It is to this category that health centres more correctly belong. The National Health Services Commission recommended that a large number of health centres should be established throughout the country and that they should serve as the foundation for a truly national health service. This recommendation is being implemented as rapidly as circumstances will permit. Although the health centre service is primarily of a preventive nature, or will be when it is fully developed, the health centres also perform a most useful function in the field of curative medicine. The policy has been to establish health centres first in those areas where, owing to poverty, the need is greatest. For the same reason curative medical services are also badly needed in such areas. Although this is not their primary function, the health centres are filling a great need in providing pauper medical relief in the areas where they have been established. A large number of patients are seen and treated at the health centres themselves while, in addition to this, district nursing and midwifery services and, in emergency, domiciliary medical services are provided to the people in the area served by the health centre.

(iii) *Out-patient Departments at Public Hospitals.*

The maintenance of outpatient services at public hospitals, just like the maintenance of the hospitals themselves, is a function of the various provincial administrations, or of hospital boards responsible to those administrations. The large provincial hospitals in all the provinces maintain big outpatient departments, in most cases including specialist medical and surgical diagnostic and curative services. These departments are attended by very large numbers of people of all races. This system will continue, but in addition certain financial responsibilities in this connection have been assumed by the central Government in accordance with its policy of providing extra-institutional medical services. Section 17 of the Public Health Amendment Act (No. 51 of 1946) enables the Minister of Health to refund to an administrator or to a hospital board the entire approved nett cost of providing outpatient services at, or in connection with, a detached out-patient department maintained in conjunction with, or independently of, a general hospital. The expression detached out-patient department means an outlying institution where out-patient services only are rendered save that the provision of beds for the accommodation of emergency cases pending removal to a general hospital shall not be precluded. The cost of any domiciliary services which may be provided is not subject to this refund. Expenditure incurred by provincial administrations in connection with the maintenance of district nursing services in association with hospitals is, of course, eligible for half refund in terms of much earlier legislation, viz. Section 13 of Act No. 57 of 1935. The Minister is further empowered to make regulations for the proper carrying out of Section 17 of Act No. 51 of 1946. Regulations were accordingly published on 28th March, 1947 under Government Notice No. 648 dealing with the procedure to be adopted and the method of making claims for refunds in connection with these services.

(iv) *Services provided by Local Authorities.*

For many years all the larger local authorities have provided ante-natal and child welfare clinics for persons of all races while several of the big municipalities have developed and maintained large general clinics in their Native locations. The full cost of these services has been borne by the local authorities themselves as none of this expenditure was subject to refund as is the expenditure on the maintenance of venereal disease and tuberculosis clinics.

As previously indicated, however, in terms of the Public Health Amendment Act (No. 51 of 1946) the Government has assumed certain financial obligations in connection with the provision of extra-institutional medical services. In terms of Section 17 of this Act the Minister is empowered to refund to local authorities half of the approved net cost actually and necessarily incurred on the maintenance of out-patient services of this sort. In some cases domiciliary nursing and maternity services and, when necessary, medical services, are provided from these clinics. Expenditure involved in this connection is not eligible for part-refund under Section 17 of Act No. 51 of 1946 which refers only to out-patient services. However, the expenditure incurred by local authorities on the salaries of district nurses and midwives who devote their whole time to district work was, prior to 1946, refundable to the extent of one-third, a proportion which has been increased by the Public Health Amendment Act of 1946 to one-half. Thus the proviso that Section 17 of Act No. 51 of 1946 applies only to out-patient services in no way interferes with the pre-existing arrangement for the subsidisation of district nursing services maintained by local authorities, under Section 14 of Act No. 57 of 1935. The latter services are dealt with in more detail in the appropriate section of this report, viz. District Nursing and Maternity Services under the general heading of Preventive Personal Health Services.

(v) *Dental Services.*

The provision of dental services to paupers has unfortunately lagged far behind the provision of medical services. A few full-time dentists are employed by the different provincial administrations either in connection with the school medical services or, as in Natal, to provide dental attention at the provincial hospitals. The number of full-time dentists so employed is very small having regard to the dental needs of the population. Their services are however, augmented to a certain extent by the employment of part-time dentists in the school medical services. In addition to those there are a few dentists employed by the largest of the local authorities mainly to carry out dental work in the locations. There are also the Coronation Dental Infirmary in Johannesburg and the Pretoria Dental Clinic, both of which employ full-time dental staffs assisted by honorary dental surgeons. Both these institutions get financial assistance from both the Transvaal Provincial Administration and the municipality concerned. The Witwatersrand Dental School and Hospital, which is staffed by both full-time and part-time dentists, carries out a great deal of dental surgery in addition to its teaching functions. Extractions of teeth for the relief of pain are frequently carried out by district surgeons especially in the country districts. The Health Department also provides dentures for paupers.

It will be seen that very little provision is made for dental services apart from private practice and that such services as are provided are not correlated nor do they fall under any one authority. The National Health Services Commission recommended that the health centres should provide dental services and that the larger centres should employ full-time dentists. This is the accepted policy and the government is endeavouring to implement it but owing to the great difficulty in obtaining the necessary staff it has so far only been possible to appoint a very few dentists to the health centre service.

(b) *Non-Pauper Medical and Dental Services.*

Extra-institutional medical and dental services are rendered to all those persons falling outside the category of paupers through a number of different agencies.

(i) *Private Medical and Dental Practitioners and Private Nurses.*

There is of course a very large number of people who receive medical and dental attention from private practitioners at their own expense. This group also employs private nurses for domiciliary nursing to a considerable

extent. From the section of this report dealing with the activities of the South African Medical and Dental Council it will be seen that on 30th June, 1947, there were 4,802 registered medical practitioners and 824 dental practitioners. The majority of these are engaged in private practice. There were also at this time some 10,000 registered medical and surgical nurses in the country. This figure, however, includes some who have married or for other reasons are not now engaged in nursing work. It is not possible to indicate the numbers to which this applies. Neither is it possible to indicate the numerical distribution of those who are engaged in nursing.

Under the conditions which prevailed during the war the numbers of private medical and dental practitioners serving that section of the community which meets the cost of its own medical care was far from adequate especially in the country districts. With the return of a very large number of these practitioners from military service to private life and the increasing numbers of men and women who have graduated in medicine recently at the medical schools at Witwatersrand and Cape Town Universities the position has improved to a considerable degree. It will still further improve now that medical graduates from Pretoria University are swelling the ranks of medical practitioners. The acute shortage of nurses, however, remains a very serious problem. While it affects those people who wish to employ private nurses in their own homes to a considerable degree, it is even more serious in connection with hospitals where the shortage is very grave. This matter is therefore discussed in more detail in that section of the report.

(ii) *Medical Attention Provided as One of the Conditions of Employment.*

There is a very large and heterogeneous group of people which receives medical attention free of charge and as a condition of their employment. Into this category fall a large number of persons who are in government employment such as members of the Police Force and prison officers and their wives who receive attention from the district surgeons, and members of the Defence Force who are attended to by military medical officers. All these persons are entitled to hospital as well as to domiciliary and out-patient treatment. There is also the numerically very much larger group of mine Native labourers for whom by law the employers, the mining companies, are bound to provide medical services. As the services so provided form a very important part of the country's hospital services they are referred to in more detail under that heading of this report. The employees of certain industrial and commercial firms also receive medical attention, either at their place of work alone or both there and in their homes, as one of their conditions of employment. The Workmen's Compensation Act provides that workmen injured on duty shall receive medical attention under the insurance scheme. Services under this act are rendered by private practitioners throughout the country.

(iii) *Medical Benefit Societies.*

A very large number of persons employed by large public organisations such as the Public Service, the South African Railways and Harbours Administration, Iscor and the larger municipalities as well as many of those employed in large private industries, such as the mines, in banks and in commercial undertakings are members of one or other of the many medical benefit societies. The largest of these societies is the Railway Sick Fund, membership of which is compulsory for all European Railway employees and pensioners who have passed the necessary medical examination. The dependants of both these categories of persons also belong to the Sick Fund. Certain Non-European staff is also included and their dependants are eligible for membership in some cases. The Railway Administration has some 95,000 European employees who with their dependants constitute about one-tenth of the total European population of the Union. This single society thus provides for the medical attention of a

considerable proportion of the population. The mine medical benefit societies on the Witwatersrand amalgamated some years ago to form one large organisation providing for the European employees and their dependants on all the reef mines. This too is a very large society. Medical benefit societies usually receive a considerable measure of financial assistance from the employing body while in some cases the employer also administers the benefit society. Thus, although the individual members contribute to the societies, the benefits which they receive are in part provided by the employer. This, however, is not the case in connection with the medical benefit societies for public servants which are entirely dependent on the contributions of their members, who thus bear the full burden of the cost of medical services.

(iv) *Friendly Societies and Medical Aid Societies.*

There are a large number of friendly societies the members of which are entitled to medical attention from doctors who are paid by the societies on a capitation basis. In the case of medical aid societies the doctors are paid in accordance with a tariff of fees agreed upon between the society and the Medical Association. The contract is between the doctor and the patient but the society undertakes to pay the doctor's account in conformity with the tariff. In the case of both friendly societies and medical aid societies the total cost of providing the medical attention is borne by the members, either collectively or individually.

(2) HOSPITAL SERVICES.

Hospitals may be divided initially into two groups, namely those which are maintained by public bodies and those which are maintained by private organisations or individuals.

(a) *Public Hospitals.*

(i) *Provincial Hospitals.*

Much the largest group of hospitals are those intended for general medical and surgical treatment. These are commonly known as "general" or "provincial" hospitals. Large and well equipped hospitals, usually containing several hundred beds, up-to-date operating theatres, modern X-Ray equipment and all other necessary facilities for diagnosis and treatment, are provided in all the large towns of the Union. These hospitals provide for the treatment of patients of all races of the community. Similar, but smaller and less well equipped hospitals also exist in many of the smaller towns. Provision is made for full-paying, part-paying and free patients, a means test being applied. The majority of the patients, even among the Europeans, fall within the category of "free patients", while among the Non-Europeans, and particularly the Natives, the number of paying patients is negligible. Medical attention is provided by private practitioners who work in the hospitals in a part-time capacity and are paid an honorarium for their services. They are assisted by full-time junior resident medical staff, known as "house-men" who are usually employed for a short period only by any particular hospital. These doctors are usually persons who have graduated recently and are gaining clinical experience in the hospitals.

The provision of hospital accommodation for maternity cases is also a function of the provincial administrations or of hospital boards. In some of the large centres separate maternity hospitals have been provided while in other cases sections of general hospitals have been set aside for this purpose. Generally speaking, however, the amount of accommodation so provided is very inadequate and much has been done through the initiative of private persons or organisations to supply the needs in various areas.

Convalescent homes and chronic sick homes are only to be found in the largest centres. They do not, however, make provision for all races and sections of the community. In so far as they are provided they fall under the same arrangements as regards control and management as the general hospitals.

In terms of the Constitution the provision and maintenance of all these hospitals is a function of the respective provincial administrations in each of the provinces. In Natal the hospital services have for many years been carried out directly by the provincial administration while in the other three provinces the system of delegation of responsibility by the provincial administration to a number of different hospital boards has been in vogue. The details of the system of financing these hospital boards vary slightly in the different provinces but, broadly speaking, the system is that the hospital boards are responsible for raising a considerable proportion of the money required by public subscription and that they are heavily subsidised by the provincial administration in proportion to the amounts so raised.

The hospital services are, however, in a state of transition at present. The principle of the provision of free hospital services to all regardless of whether the patient is able to pay or not, has been accepted by all the provincial administrations and ordinances have been passed by some at least of the provincial councils to implement this policy. Implicit in this policy is the need for the provincial administrations to assume full responsibility, including financial responsibility, for hospital services and as a result the Transvaal, Cape and Orange Free State Administrations are taking the necessary steps to bring the hospitals under their more direct control. The new system also carries with it the need for a considerable expansion in hospital services. Concurrently, or prior, to the actual provision of additional hospital beds it has been necessary for the provincial administrations to set up the organisations for the control and supervision of the hospital services in their respective provinces. Accordingly, Directors of Hospitals with subordinate staff have been appointed in all provinces within the last two or three years and the necessary preliminary work of organising the development of hospital services on the new basis is being carried out. A most important alteration in the system will be the appointment of paid medical staff to the hospitals in place of the previous arrangement by which medical and surgical services were carried out by honorary staff or medical officers who were paid an honorarium. All these changes will involve the expenditure of far greater amounts of money on hospital services. In addition the negotiations for the completion of all the arrangements for the change of system are necessarily protracted. It is accordingly uncertain at this stage when the new system will actually come into force in any of the provinces. Steps have, however, already been taken to ease the financial burden of hospital fees. The Orange Free State has provided free hospitalisation for single persons earning less than £300 a year and for married persons earning less than £600 a year since 1st April, 1947. As far back as 1st October, 1943, the Transvaal hospitals made a reduction of 20 per cent. in their fees for full-paying patients while a further reduction of 37½ per cent. was made in February, 1948.

(ii) *Mental Hospitals.*

The Mental Hospital service has always been provided by the central Government. Until 1943 the service was under the control of the Department of the Interior but in that year it was taken over by the Department of Health and now forms a very large and most important division of that Department. A separate and detailed annual report is issued by the Commissioner for Mental Hygiene in terms of the Mental Disorders Act.

Accommodation is provided for patients of all races from throughout the Union and South West Africa in ten mental hospitals. There are also two institutions for the feeble-minded which, however, provide for Europeans only. The great majority of the patients who are admitted to the mental hospitals are certified as being either mentally disordered or mentally defective, as the case may be, in terms of the Mental Disorders Act (No. 38 of 1916 as amended by Act No. 7 of 1944) although voluntary patients are also admitted to the institutions. Temporary patients, who are not certified, are admitted to the hospitals at

the request of relatives. Inebriates are also admitted on their own request. The vast majority of the patients, both European and Non-European, are maintained entirely at government expense but a certain small proportion of part-paying or full paying patients are also admitted.

It has long been recognised that the amount of accommodation provided is quite insufficient to meet the needs of the community and an extensive programme for expansion has been drawn up and has been approved in principle. It is obvious, however, that it will be many years before all the contemplated additional accommodation can be provided, especially in view of the existing difficulties in connection with building and the recruitment of adequate staff. In the meantime, the extreme shortage of nursing staff for this type of work, which is apparently not popular, still further increases the difficulty of providing the necessary services.

(iii) *Tuberculosis Hospitals.*

The Government's policy in regard to the provision of accommodation for cases of tuberculosis is referred to in the section of the report dealing with that disease, which also includes a map indicating where the various tuberculosis hospitals are situated, the number of beds and the authority by which they are controlled. The Department has for many years provided accommodation for tuberculosis sufferers at Nelspoort Sanatorium in the Karroo and at King George V Hospital at Durban, while large Departmental hospitals are being opened at Wentworth, Durban, at Westlake, near Cape Town at West End, Kimberley and a section for Natives is to be opened at Rietfontein, near Johannesburg. Other regional tuberculosis hospitals which will fall under the Department of Health are projected. These hospitals will provide complete and up-to-date services for the diagnosis and treatment of tuberculosis cases. It will, however, still be the duty of the various local authorities to provide accommodation for the isolation of cases in their areas. Cases which need more highly specialised treatment will then be transferred to the regional hospitals of the Department.

A large number of municipalities have already provided a considerable amount of accommodation for tuberculosis sufferers, as is indicated on the map in the tuberculosis section of this report, either in the form of hospitals built for that purpose or more commonly in wards specially set aside for tuberculosis in their infectious diseases hospitals.

The Government has, of course, borne the full cost of the establishment of its own tuberculosis hospitals with the exception of Nelspoort Sanatorium where it was largely assisted by a very generous donation. In regard to the other hospitals, the Government bore the full cost of the tuberculosis hospitals at Port Elizabeth and at Beaufort West as these were intended to serve extensive areas. In the case of tuberculosis accommodation which is provided by local authorities, prior to 1946 the Government refunded one-half of the approved capital cost but in terms of the Public Health Amendment Act (No. 51 of 1946) the Department is now empowered to refund two-thirds of this expenditure.

A considerable amount of accommodation has also been provided by various missionary bodies, either in the form of hospitals built specially for the purpose, such as the Queen Victoria Hospital at Lovedale, or as beds in general mission hospitals which are set aside for the use of tuberculosis patients.

It is in connection with the staffing of the Department's tuberculosis hospitals perhaps more than in any other field that the shortage of trained nursing personnel has been most acutely felt. Although the demand for beds for sufferers from tuberculosis is very great the Department has not been able to make full use of the accommodation which is available owing to the fact that it has been impossible, in spite of repeated efforts, to obtain the

necessary nursing staff. It was for this reason that the Department started training Non-European nurse aides for service in its tuberculosis hospitals, as mentioned in the section of this report dealing with tuberculosis.

(iii) *Infectious Diseases Hospitals.*

In terms of the Public Health Act it is the duty of all local authorities to prevent the spread of infectious diseases in their areas. For this purpose it is often necessary for them to hospitalise cases of infectious disease and it is therefore essential that each local authority should have at its disposal the services of an infectious diseases hospital. The larger municipalities provide their own hospitals which in many cases are in close proximity to and run in conjunction with a general hospital, but at the cost of the local authority. This is an excellent arrangement as it reduces overhead costs and staffing difficulties to a minimum. This system is, however, not always possible and some isolation hospitals are run as entirely separate institutions by the local authorities concerned. In some cases municipalities have combined to provide infectious diseases hospitals while in other cases small local authorities which have not their own accommodation make use of the accommodation provided by other municipalities, paying for the service on a per patient day basis.

Generally speaking the amount of accommodation provided for this type of case in the larger town is reasonably adequate. In the smaller country towns, however, isolation accommodation is often entirely absent while the distance to the nearest infectious diseases hospital may be considerable. This means that the proper isolation of such cases often presents great difficulty. In towns where there is a general hospital but no isolation accommodation cases of infectious disease are sometimes sent long distances to the hospital and it is only when they arrive there that the diagnosis of some infectious disease is made. The hospital authorities are then placed in a very awkward position owing to circumstances entirely outside their control. If the patient is seriously ill they cannot refuse his admission and at the same time neither they nor any other authority has any proper facilities for the isolation of such cases.

The maintenance, and particularly the staffing, of a small infectious diseases hospital is admittedly a difficult matter because of the great fluctuation in the numbers of patients from time to time. On the other hand it is essential that each local authority should have some suitable arrangement for the isolation of cases of infectious disease.

In towns where there is a general hospital it can usually be arranged with the hospital board that the municipality may erect an isolation block in the hospital grounds, after transfer of a small area to the council. By arrangement between the hospital board and the council the isolation block can be staffed and run by the hospital authorities on behalf of the council and at their expense, usually on a patient day basis, while the medical officer of health keeps control over the admission and discharge of patients. In this way the heavy overhead costs and the difficulties of staffing, which are inherent in the maintenance of a very small hospital, are overcome to the mutual benefit of all concerned.

The need for isolation facilities for cases from the rural areas is also very great. The responsible local authority for such patients is the Divisional Council in the Cape Province and the magistrate in the other provinces where there is no other established local authority, such as the Peri-urban Areas Board of the Transvaal or the Local Government Commission of Natal. Where the magistrate is the local authority the provincial administration concerned is financially responsible. Accordingly arrangements have been made in several instances by which a provincial administration bears a proportion of the capital expenditure of the establishment of an isolation hospital.

In all cases the central Government, through the Union Health Department bears one-half of the approved capital cost and maintenance expenditure of ordinary infectious diseases hospitals. Thus in cases where the provincial administration is willing to contribute towards the capital cost it has sometimes been possible to arrange that the municipality and the provincial administration each pay one quarter of the capital cost and the Union Health Department pays the remaining half. Maintenance costs are debited to the local authorities concerned on a per patient-day basis.

The Department strongly recommends that local authorities which have no isolation facilities but which have general hospitals in their areas should explore the possibilities of setting up isolation blocks as indicated above and that they should consider the question of entering into a joint agreement either with neighbouring local authorities or with the provincial administration. The Union Health Department has arranged several joint schemes of this sort and will gladly give further advice on the matter. It is considered that if there were an isolation block at each town where there is a general hospital this would go very far towards meeting the needs of the community in this connection.

(iv) *Venereal Disease Hospitals.*

Much the largest venereal diseases hospital in the country is that maintained by the Department of Health at Rietfontein near Johannesburg. This hospital provides accommodation for a very large number of Natives and a small number of Europeans and is intended for those cases who, for one reason or another, are not suitable for out-patient treatment. The Department also has a number of other smaller hospitals in different parts of the country for these cases while several local authorities have provided beds either in conjunction with their infectious diseases hospitals or separately. The total number of beds available for this purpose is indicated in the appropriate section of the report. It must again be emphasised, however, that the vast majority of cases are treated as out-patients either at municipal clinics or by district surgeons.

Apart from its own hospitals, the capital cost of which has of course been borne entirely by the Government, the Department, prior to 1946, refunded two-thirds of the approved expenditure involved in establishing and maintaining hospitals or clinics for the treatment of cases of venereal disease. In terms of the Public Health Amendment Act (No. 51 of 1946) the Department is now empowered to refund to local authorities the full capital and maintenance costs of such undertakings where it has approved of such schemes. It has previously been pointed out, however, that except in the larger towns the treatment of venereal disease is one of the principal functions of the district surgeons and it is only in cases where it is not practicable for the district surgeon to carry out this treatment that the Department encourages the establishment of venereal disease schemes by local authorities.

(v) *Hospitals for Formidable Epidemic Diseases (Plague, Smallpox, Typhus, Yellow Fever, Cholera, Sleeping Sickness).*

At Rietfontein Hospital, near Johannesburg, the Department has accommodation which is specially set aside for cases of formidable epidemic diseases. Provision is made for both Europeans and Non-Europeans. This accommodation is in frequent use particularly for cases of smallpox occurring on or near the Witwatersrand and, to a much lesser extent, for cases of plague. Generally speaking, however, most outbreaks of the three formidable epidemic diseases which occur in the Union, viz. smallpox, typhus and plague, take place in the rural areas or the Native territories and in such circumstances emergency arrangements are generally made for dealing with the cases where they have occurred. Steps are, however, being taken towards the establishment of a small hospital for the treatment of such cases at Umtata, while at Durban

the Department has accommodation on the Bluff intended for the isolation of cases of infectious disease which arrive by ship. This accommodation is also available for any cases of formidable epidemic disease which may be found either on ships in the harbour or in the area generally. At the ports of Cape Town and East London and at Bloemfontein the municipalities concerned have provided accommodation for cases of formidable epidemic disease.

The full cost of hospitalisation of cases, as well as of other approved measures for dealing with outbreaks of formidable epidemic disease, is borne by the central Government through the Department of Health, in terms of the Public Health Amendment Act (No. 51 of 1946). Prior to this the Government bore two-thirds of the cost. In the case, however, of persons arriving on ships suffering from any, infectious disease, including formidable epidemic disease the shipping company concerned is held liable for any expenditure which is incurred.

(vi) *Leper Institutions.*

In accordance with the leprosy laws of the country all leprosy cases must be isolated in institutions specially set aside for that purpose. There are five such institutions in different parts of the Union, all of which are maintained by the Department of Health. These institutions provide for all races and treatment is offered to the inmates free of charge but is not compulsory.

(b) *Hospitals belonging to Private Organisations or Individuals.*

(i) *Mission Hospitals.*

There are a large number of mission hospitals, varying greatly in size and in the facilities which they offer, throughout the country. The majority are naturally to be found in the Native Territories where, in many cases, they provide the only hospital accommodation which is available to large and scattered Native communities. These hospitals usually provide for all types of patients, often under very difficult circumstances, and serve a most useful function, particularly in the remote regions of the Native territories. Although intended for Natives some of the mission hospitals provide in case of emergency for European patients in those areas where no other facilities exist.

The Union Health Department makes use of mission hospitals for the isolation and treatment of cases of infectious disease, including patients suffering from tuberculosis and venereal disease. The Department reimburses each hospital management on a per patient day basis in accordance with a tariff which has previously been agreed upon between the Department and the hospital committee. These tariffs vary somewhat according to the facilities provided and the cost of running the hospital but the policy is to pay the hospital management for services rendered at the cost to them per patient per day.

Prior to the war many of the missionary societies were largely dependent for their revenue on overseas sources. During the war and in the post-war period such sources of revenue have in many cases been severely restricted or have actually been cut off altogether in some instances. The missionary organisations have thus become more and more dependent on local sources of income.

Formerly the mission hospitals received great financial assistance from the Native Trust. In view, however, of the acceptance by the provincial councils of the principle that hospital services should be provided free to all the financial responsibility for rendering such services has devolved on those administrations. The provincial councils have all accepted this responsibility in principle and it seems that the mission hospitals will in future receive a large proportion of their revenue from this source.

(ii) *Mine Hospitals.*

The conditions of Native labourers in industry and mining are controlled by the Native Labour Regulation Act (No.

15 of 1911). This act is administered by the Director of Native Labour, a senior official of the Native Affairs Department. The act deals with many different aspects of Native labour and among others with matters of housing, hygiene, feeding and the provision of medical services to the labourers. The Director of Native Labour is stationed in Johannesburg which is, of course, the centre of far the largest industrial area in the Union. The Union Health Department has an Assistant Health Officer, stationed in Johannesburg, one of whose principal functions it is to advise the Director on matters such as housing, hygiene, feeding and medical services.

In terms of the Native Labour Regulation Act the employers of Natives on mines and works are required to provide medical attention for their Native labourers. Mines and Works are as defined in the Mines and Works Act (No. 12 of 1911) as amended. The mining companies accordingly employ medical officers, either in a part-time or whole-time capacity according to the size of the mine. The mines are also required to provide suitable hospital facilities and all the larger mines or mining groups have their own hospitals while the small mines sometimes make use of public hospitals.

The large gold mines on the Witwatersrand, most of which employ many thousands of Natives, maintain large, well-equipped and suitably staffed hospitals. The mine medical officers usually live in close proximity to the hospital and are full-time officials of the mining company, devoting their whole time to the provision of medical services to the Native employees. The mines make considerable use of male nurses, many of whom are registered with the South African Nursing Council while others are undergoing training, as the Witwatersrand mine hospitals provide a training ground for European male nurses. Female nurses are also used but to a lesser extent. Many of these mine hospitals are of considerable size, containing several hundred beds, and the amount of hospital accommodation so provided is in the aggregate very large indeed.

On the small mines situated in the country districts the provision of adequate medical facilities presents some difficulty. Many of these mines are so small that they cannot, economically, maintain adequate and properly staffed hospitals. In such cases the Department always advises that the mine should make full use of the nearest public hospital and that every case which is sufficiently ill to require hospital attention should be sent to the public hospital for treatment. If this is done such mines need only provide clearing stations for the accommodation of minor cases, for first-aid in case of accidents and for serious cases awaiting removal to hospital, which should be carried out almost immediately. In all such cases the mine must have proper arrangements with the hospital concerned for the admission of patients and adequate transport facilities must be provided. The cases are of course treated in the hospital at the expense of the mine. If this procedure is properly carried out there is no danger of the patients not receiving suitable treatment. In general, this arrangement is carried out conscientiously and satisfactorily. It has, however, sometimes been found that some mining companies for reasons of economy tend to retain cases in the clearing stations which should be in hospital. This practice is to be strongly depreciated as it may lead to patients receiving inadequate and unskilled treatment. The Department's Assistant Health Officer carries out periodic inspections of the various mines in different parts of the country with the Director of Native Labour and one of the objects of these inspections is to ensure that the Native labourers are receiving adequate and suitable medical attention.

(iii) Private Nursing and Maternity Homes.

All nursing and maternity homes conducted for gain and not maintained by the government, provincial administrations, hospital boards, local authorities or other public bodies, require to be registered with the Department of Health. The total number of nursing and maternity

homes so registered at 30th June, 1947, was 338 (see Table 55). Of these 282 admitted European cases only, 26 admitted both European and Non-European cases and 30 admitted Non-European cases only. For Europeans there were 241 Homes to which maternity cases were admitted and 131 Homes to which general cases were admitted. For Non-Europeans there were 35 homes to which maternity cases could be admitted and 46 homes to which general cases could be admitted.

Table 56 shows the number of qualified and unqualified nursing staff employed in these homes, there was an average of 1 qualified nurse or midwife to 4.44 beds or 1 nurse (including unqualified) to 2.26 beds, an improvement on last year. During the year 233 inspections of nursing homes were carried out, 153 by departmental officers and 80 by officers attached to various local authorities.

Of the 338 homes on the register at 30th June, 1947, 22 [28] were considered to have inadequately qualified staff in charge as follows, with last year's figures in brackets :—

- (a) 8 [12] homes were in charge of unregistered persons
6 [8] of these admitted maternity cases only, 1 [3] admitted both general and maternity cases, and 1 [1] admitted general cases only.
- (b) 8 [11] homes registered for admission of general cases were in charge of midwives.
- (c) 6 [5] homes registered for the admission of maternity cases were in charge of registered nurses with no midwifery certificate.

In addition some of the 10 [12] nursing homes registered with medical practitioners in charge did not always have suitably qualified nurses on the staff.

It is greatly to be regretted that there are any nursing homes which are under the charge of unsuitably qualified persons. Under the present conditions of shortage of nurses, however, this is almost inevitable. It is considered that, particularly in the country districts, the provision of these facilities, although not ideal, is at least greatly preferable to the complete absence of such facilities, which in many cases would be the alternative. In any case, the position in this connection is improving steadily. All the nursing and maternity homes registered for the first time during the year under review had suitably qualified persons in charge.

TABLE 55.—NURSING HOMES REGISTERED WITH THE DEPARTMENT.

Year.	Cape.	Transvaal.	Natal.	Orange Free State.	Total.
As at 30/6/1929	104	90	43	26	263
As at 30/6/1930	124	91	54	29	298
As at 30/6/1931	110	98	51	25	284
As at 30/6/1932	95	94	44	26	259
As at 30/6/1933	105	100	46	25	276
As at 30/6/1934	115	103	43	28	289
As at 30/6/1935	126	128	42	28	324
As at 30/6/1936	120	116	46	34	316
As at 30/6/1937	134	120	49	35	338
As at 30/6/1938	140	126	55	55	376
As at 30/6/1939	147	124	61	48	380
As at 30/6/1940	146	125	62	52	385
As at 30/6/1941	145	123	60	53	381
As at 30/6/1942	140	123	57	45	365
As at 30/6/1943	146	119	55	53	373
As at 30/6/1944	146	118	49	57	370
As at 30/6/1945	142	127	54	53	376
As at 30/6/1946	135	130	50	58	373
As at 30/6/1947	122	122	37	57	338

TABLE 56.—PERSONNEL OF NURSING HOMES.

Province.	European.		Non-European.	
	Qualified.	Unqualified.	Qualified.	Unqualified.
Cape.....	326	274	9	29
Transvaal.....	442	425	8	7
Natal.....	196	227	7	49
Orange Free State.	62	28	1	—
TOTALS.....	1,026	954	25	85

TABLE 57.—BED ACCOMMODATION AVAILABLE IN NURSING HOMES.

Province.	1944.		1945.		1946.		1947.	
	Euro-pean.	Non-Euro-pean.	Euro-pean.	Non-Euro-pean.	Euro-pean.	Non-Euro-pean.	Euro-pean.	Non-Euro-pean.
Cape.....	1,288	544	1,308	575	1,120	501	1,166	275
Transvaal.....	1,500	319	1,704	276	1,418	336	1,556	177
Natal.....	851	809	899	790	929	403	901	339
Orange Free State	261	14	279	12	224	13	266	3
TOTAL.....	3,900	1,686	4,190	1,653	3,691	1,253	3,889	776

VII.—GENERAL.

THE NATIONAL HEALTH COUNCIL.

The National Health Council was established by Section four of the Public Health Amendment Act, 1946 (Act No. 51 of 1946) with effect from the 1st of January, 1947.

The ultimate number of members of the Council will be sixty, comprised as follows:—

- eight *ex officio* members being the Minister (Chairman), the Chief Health Officer (Deputy Chairman), the Secretary for Social Welfare, the Secretary for Native Affairs, the Secretary for Labour, the Secretary for Education, the Commissioner for Mental Hygiene, or their nominees and the Director of Veterinary Services or his deputy;
- thirteen elected members consisting of: seven registered medical practitioners, two registered dentists, two registered nurses, one registered midwife who shall in addition be a registered medical and surgical nurse and one registered chemist and druggist;
- twenty-six members nominated by associations which either render voluntary health services or which by the nature of their activities are intimately associated with health work;
- nine members appointed by the Governor-General;
- four members appointed by the executive committees of the provinces.

The present members of the Council are the following:—

Dr. the Hon. Henry Gluckman, M.P.	Minister of Health.
Dr. G. W. Gale.....	Secretary for Health.
Mr. G. A. C. Kuschke..	Secretary for Social Welfare.
Mr. G. Mears.....	Secretary for Native Affairs.
Brig.-Gen. F. L. A. Buchanan, M.C., V.D., E.D.	Secretary for Labour.
Mr. H. S. van der Walt	Under-Secretary for Education.
Dr. P. J. G. de Vos....	Nominee of Commissioner for Mental Hygiene.
Dr. P. J. du Toit.....	Director of Veterinary Services.

Elected by—

Dr. C. J. Konig.....	Registered Medical Practitioners.
Dr. B. P. Lubbe.....	
Dr. J. J. C. Pietersen..	
Dr. J. H. Rauch.....	
Dr. D. J. Serfontein....	
Dr. A. B. Theron.....	Registered Dentists.
Dr. C. F. van der Merwe	
Prof. J. C. Middleton Shaw	Registered Nurses.
Dr. M. Berman.....	
Mrs. E. H. Scholtz....	
Miss C. A. Nothard....	Registered Midwives.
Miss H. C. Fick.....	
Mr. S. Sapire.....	Registered Chemist and Druggists.

Nominated by—

Mr. Basil Newmark.....	Municipal Association of the Cape Province.
Mrs. A. J. E. Nel.....	Municipal Association of the Transvaal Province.
Dr. T. Meyer.....	Municipal Association of the Orange Free State.
Mrs. E. E. M. Russell..	Municipal Association of the Natal Province.
Mr. H. T. van G. Bekker, M.P.	Association of Divisional Councils of the Cape Province.
Mr. James Liston.....	Health Official's Association of South Africa.
Dr. R. Alexander.....	South African Veterinary Medical Association.
Capt. S. H. Kemp.....	South African Trades and Labour Council.
Dr. J. H. G. van Blommestein	Transvaal Chamber of Mines.

Nominated by—

Mr. E. D. Barton-Lister	Federated Chamber of Industries and Association of Chambers of Commerce of South Africa.
Lt.-Col. A. H. Guy.....	S.A. Red Cross Society, St. John's Ambulance Association and the Nood-hnpliga.
Mrs. J. E. Conradie....	South African Women's Agricultural Union.
Dr. S. Ethel Rolfe.....	National Council of Women of South Africa.
Dr. Seymour Heyman..	South African National Council for Child Welfare.
Rev. R. W. Blaxall....	South African National Council for the Deaf.
Mr. R. W. Bowen, M.P.	South African National Council for the Blind.
Dr. Gordon Laing.....	South African National Council for Mental Hygiene.
Mr. F. P. Fonche.....	National Council for the Care of Cripples in South Africa.
Prof. M. C. Botha.....	University of Pretoria.
Prof. E. H. Cluver.....	University of the Witwatersrand.
Prof. F. O. Fehrsen....	University of Cape Town.
Mrs. E. C. Fleck.....	Federale Vroueraad.
Miss L. Schumann.....	
Dr. F. A. Donnolly, O.B.E.	National War Memorial Health Foundation.
Mr. C. E. James.....	South African National Tuberculosis Association.
Dr. Allan B. Taylor....	Appointed by the Governor-General in terms of Section 4 (1) (d) (i) of the Act.
Dr. F. Drewe.....	
Dr. Max Diamond.....	Appointed by the Governor-General in terms of Section 4 (1) (d) (ii) of the Act.
Mr. A. C. Stead.....	Appointed by the Governor-General in terms of Section 4 (1) (d) (iii) of the Act.

Appointed by—

Mr. G. M. H. Barrell, M.E.C.	Executive Committee of the Cape Province.
Mr. H. F. Pentz.....	Executive Committee of the Transvaal Province.
Mr. E. C. Wilks, M.E.C.	Executive Committee of the Province of Natal.
Mr. W. J. Pretorius, M.E.C.	Executive Committee of the Orange Free State.

The function of the National Health Council laid down in the law is to advise and assist the Minister and the Administrator of each province in the planning and direction of health services.

The first meeting of the Council was held in the Raadsaal, Bloemfontein on the 11th to the 14th of August, 1947, and the formidable agenda covered a wide field of subjects of great importance. Features of the meeting were the excellent spirit which prevailed throughout, the high level at which health matters were discussed as well as the important resolutions adopted.

At the first meeting of the Council the Chairman referred to the conference held in Bloemfontein in 1918, which was attended by representatives of the Union Government, the four provincial administrations, the four provincial municipal associations, the Cape Divisional Councils' Association, the Chamber of Mines, Native labour recruiting associations and a large number of medical and social organisations. These representatives summoned by the Union Government to consider the public health problems of the Union met under the chairmanship of the late the Hon. Sir Thomas Watt, K.C.M.G., the then Minister of the Interior.

Sir Thomas Watt had been a member of the National Convention from whose work the Union of South Africa was born. At the time of the meeting of the National Health Council he was one of the only two surviving members of that historic body. Sir Thomas Watt who was 90 at the time and living in North Africa was informed of the meeting of the Council and he sent a message in his own hand to the Chairman. In this message he recalled his chairmanship of the National Health Conference in 1918 and the part he played in piloting the Public Health Bill through Parliament. He said in his message:—

“The country was then ready for a step forward. Now as a result of your Commission (National Health Services Commission) it is still going forward. I congratulate you on the establishment of the National Health Council and have great hopes for the future.”

The following resolution was adopted by the Council but before the message embodied therein could be conveyed to Sir Thomas Watt, news of his death was received:—

“That this Council, having received at its first meeting a message of goodwill and goodwishes specially sent to it by the Hon. Sir Thomas Watt, a member of the National Convention, 1908–1909 Chairman of the National Health Conference held in Bloemfontein in 1918, Sponsor of the Public Health Act of 1919, and first Minister of Public Health expresses its great pleasure in and keen appreciation of this evidence of the abiding interest of the founder of the public health system of the Union in the health and welfare of its people; and conveys to him its greetings, its congratulations and its good wishes.”

At its first meeting the Council appointed three committees, viz: a Standing Committee which will function as an executive, a Health Education Committee and a Dental Advisory Committee. The Standing Committee held its first meeting in November, 1947, and the other two Committees both met in January, 1948.

The Act under which the Council is constituted requires that every formal recommendation of the Council shall be published as an appendix to the annual report of the Department of Health, and that this report shall embody the views of the Department in regard to the acceptability or otherwise of such recommendations, and shall state what action, if any, has been taken as a result thereof. Every such report shall be laid upon the Tables of both Houses of Parliament. The procedure required by the Act has been followed and the necessary information is provided in Annexure I of this Report.

THE CENTRAL HEALTH SERVICES AND HOSPITALS CO-ORDINATING COUNCIL.

The Central Health Services and Hospitals Co-ordinating Council was statutorily established with effect from the 1st January, 1947, by Section four (*bis*) of the Public Health Amendment Act, 1946 (Act No. 51 of 1946) with the aim and object of achieving the effective correlation and co-ordination of hospital and all other personal health services in the Union, and bringing about collaboration in this regard between the Union Government and the provinces, for the general benefit of the community.

The Council was established administratively in 1945 as a result of the recommendation of the sub-committee of the Provincial Consultative Committee and had the following terms of reference:—

To advise upon the correlation and co-ordination of hospital services in the Union. Such co-ordination to embrace *inter alia*:—

- (a) conditions of service and salaries of all staff connected with these services; and
- (b) the training of personnel for these services.

The personnel of the Council as determined by the Act consists of—

- (i) the Minister who is Chairman;
- (ii) the Chief Health Officer or his nominee;
- (iii) two members appointed by the Governor-General one of whom is a member of the medical profession; and
- (iv) one member appointed by the executive committee of each province.

Since its establishment the Council has held twelve meetings, eight under its administrative and four under its statutory cloak.

This body has proved most valuable to all concerned and has gone far towards achieving its aims and objects chiefly among which may be mentioned the securing of uniform salary scales and service conditions of hospital personnel, reciprocity of pension rights for nurses on transfer between the provinces, the equation of salaries of nurses in mental institutions to those of general nurses and dealing with the standardisation of hospital equipment in collaboration with the South African Bureau of Standards.

The Council is required by regulation to meet at intervals of not less than six months but as a result of the volume of work has met not less than four times a year.

A tribute should be paid to the members of the Council who gave unstintingly of their time and service for the benefit of the community.

THE SOUTH AFRICAN MEDICAL AND DENTAL COUNCIL.

Resume of Business for the Year Ended 30th June, 1947.

The half-yearly meetings of the Council were held in October, 1946 and March, 1947. The October, 1946 meeting lasted 5 days, the March, 1947 meeting 4 days. The Executive Committee met on 10 occasions, 9 of the meetings lasting 2 days, making a total of 19 days spent on Executive Committee business.

The following further meetings of Committees were held:—

The Medical and Dental Education Committee.....	2
The Auxiliaries Committee.....	2
The Specialists Committee:—	
Medical.....	4
Dental.....	1
Special Meeting.....	1
Special Disciplinary Committees.....	6 meetings
were held lasting 15 days in all, and in which complaints against 14 practitioners were dealt with.	

In addition, Special Committees met on 8 occasions.

The following table indicates the number of registrations and restorations effected during the year:—

	<i>Registered.</i>	<i>Restored.</i>
Medical Practitioners.....	370	25
Specialists.....	108	—
Dentists.....	58	4
Medical Students.....	614	73
Dental Students.....	102	8
Masseurs.....	3	1
Physiotherapists.....	29	—
Radiographers.....	—	—
Optometrists.....	—	—
Food Inspectors.....	35	—
Health Inspectors.....	42	—
Occupational Therapists.....	4	—

Of the 370 medical practitioners registered 227 held qualifications of South African universities, and the remaining 143 held qualifications of recognised universities overseas.

Of the 58 dentists registered 14 held qualifications of the South African dental school, and the remaining 44 held qualifications of recognised universities overseas.

The following specialists were registered during the year:—

Specialists in Anaesthetics.....	14
Dermatology.....	2
Medicine.....	15
Neurology.....	2
Neuro-Surgery.....	1
Obstetrics and Gynaecology.....	10
Ophthalmology.....	4
Orthopaedics.....	4
Otorhinolaryngology.....	6
Pathology.....	11
Pediatrics.....	8
Physical Medicine.....	—
Psychiatry.....	4
Radiology and Electro-therapies.....	1
Radiology.....	7
Surgery.....	18
Urology.....	3
Venereology.....	1

Three practitioners were registered in two associated specialities, viz:—

- 1 in dermatology and venereology;
- 2 in neurology and psychiatry.

The following table indicates the number of persons whose names appear on the various registers kept by the Council as at 30.6.47:—

Medical Practitioners.....	1,802
Dental Practitioners.....	824
Medical Students.....	2,907
Dental Students.....	283
Masseurs.....	105
Physiotherapists.....	68
Radiographers.....	6
Occupational therapists.....	3
Optometrists.....	1
Health Inspectors.....	41
Food Inspectors.....	35

At the request of various categories of medical and dental auxiliary personnel, the Council has drafted rules for the registration of further groups of auxiliaries, as well as rules regarding the conditions under which they may carry on their calling. Rules have so far been drafted for the following groups in addition to groups which are at present registrable:—

Dietitians, medical technologists, specialists in medical technology, health assistants and chiropodists.

The Council has under consideration the establishment of registers for further groups. The registers established by the Council for the various categories of auxiliary personnel are voluntary registers and do not effect the right of any person whose name does not appear on these registers to practise his profession. These registers serve a dual purpose. The Council has ensured that persons whose names appear on these registers are adequately qualified to practise their professions, in order that the public, and medical and dental practitioners, who refer patients to auxiliary personnel, shall have a reliable guide as to which persons are properly trained to practise their professions; also that members of these professions who are so qualified may have the protection which a register of the Council affords.

The various registers which have thus far been instituted, have been instituted after representations have been made to the Council by the professional body representing the relevant group of auxiliaries. The draft Medical Auxiliaries Registration Bill, which will make the registration of auxiliaries compulsory, has not yet been introduced into Parliament. The Council has, however, been given an assurance that the Bill will be proceeded with at the earliest opportunity.

Under the provisions of the Medical, Dental and Pharmacy Act Amendment Act (Act No. 14 of 1946) the Council was granted extended powers. Under the provisions of this Act the Council established registers for the undernoted classes of medical practitioners who hold qualifications which are not otherwise registrable (Government Notice No. 256 of 7 February, 1947):—

- (a) persons engaged in missionary medical practice;
- (b) persons engaged by universities and scientific institutions approved by the Council; and
- (c) persons who have served as medical practitioners in the South African Medical Corps of the Union Defence Forces during the war. Under the provisions of the above Act the Council has also drafted rules which will make it compulsory for every newly qualified graduate in medicine to produce proof of having done a resident medical officership for a period of at least one year prior to his registration as a medical practitioner. It is anticipated that these regulations will become operative as from 1st November, 1948.

During the year under review an annual registration fee of £2 became payable by every medical and dental practitioner whose name appears on the Council's register of medical and dental practitioners. Arising from the correspondence in connection with the payment of the fee it was found that many hundreds of practitioners had changed their addresses without notifying the Council. The institution of the annual registration fee has consequently assisted considerably in bringing the register of medical and dental practitioners up to date.

The Council drafted new regulations for the registration of specialities. These were submitted to the Hon. the Minister of Health for approval but had not yet been promulgated at the end of the period under review. They have since been promulgated, on 24th December, 1947.

During the year the Council received a considerable number of complaints against registered practitioners. These were investigated and dealt with by the Executive Committee of the Council. Of these, 12 complaints led to formal enquiries.

On 1st January, 1947, the administrations of the Council and the South African Pharmacy Board were separated. The Board appointed its own registrar and the registrar of the Council, who had previously also acted as registrar of the Board, ceased acting as such.

The work of the Council has increased to such an extent that the Council found it necessary to increase its office staff and during the year it appointed an assistant registrar and additional staff.

THE SOUTH AFRICAN PHARMACY BOARD.

Resume of Business for the Year Ended 30th June, 1947.

The half-yearly meetings of the Board were held in July, 1946 and January, 1947 and special meetings were held in October, 1946 and April, 1947. The half-yearly meetings lasted four days each, the special meeting in October four days, and the special meeting in April three days. Meetings of the Committees of the Board were held in conjunction with the Board Meetings.

During the period under review, 132 chemists and druggists, 59 managing directors of companies carrying on the business of chemists and druggists, and 163 apprentices were registered. Of the chemists and druggists registered, 101 held the qualifying certificate of the Board, and the other 31 held the certificate of qualification of the Pharmaceutical Society of Great Britain. The following table indicates the number of registrations, restorations and erasures effected during the period under review:—

	Chemists and Druggists.	Managing Directors.	Apprentices.
On Register, 1/7/46...	1,708	178	418
Registrations.....	132	59	163
Restorations.....	4	1	—
	1,844	238	581
Erasures—			
Due to death.....	20	—	1
Others.....	1	29	74
	1,823	209	506

The usual examinations were held in December, 1946 and June, 1947, and in addition the first special examination for ex-volunteers who had attended the special intensified full-time courses of study organised for ex-volunteers was held in March, 1947.

The following tables show the results of those examinations:—

PRELIMINARY SCIENTIFIC EXAMINATION.

Examination.	No. of Candidates.	Passed.	Failed.	REFERRED FOR FURTHER STUDY.		
				Botany.	Chemistry.	Physics.
Whole examination	265	93	96	3	40	33
Botany.....	14	13	—	1	—	—
Chemistry.....	16	13	—	—	3	—
Physics.....	27	22	—	—	—	5
TOTAL.....	322	141	96	4	43	38

QUALIFYING EXAMINATION.

Examination.	No. of Candidates.	Passed.	Failed.	REFERRED FOR FURTHER STUDY.			
				Chemistry.	Dispensing.	Pharmacy.	Pharmacognosy.
Whole examination....	118	40	45	13	16	3	1
Chemistry.....	48	38	—	10	—	—	—
Pharmacy.....	2	—	—	—	—	2	—
Pharmacognosy.....	1	1	—	—	—	—	—
Dispensing.....	11	9	—	—	2	—	—
TOTALS.....	180	88	45	23	18	5	1

SPECIAL EXAMINATION.

No. of Candidates.	Passed.	Failed.	Chemistry.	REFERRED FOR FURTHER STUDY.					
				Dispensing.	Botany Chemistry.	Chemistry Dispensing.	Pharmacy Pharmacognosy.	Chemistry Pharmacy.	Chemistry Pharmacognosy.
60	35	5	2	8	2	3	1	2	2

The scheme of training for ex-volunteers proceeded satisfactorily. Intensified full-time courses of training covering a period of one year were established at Cape Town, Durban, East London, Johannesburg, Port Elizabeth and Pretoria. In all 167 students were accommodated. Further courses were also provided for.

The Board spent considerable time on the subject of a proposed higher qualification for chemists and druggists, but did not reach finality.

During the period under review the Board held enquiries into complaints of unprofessional conduct on the part of several chemists and druggists. In one case the accused person was suspended from practising as a chemist and druggist for a period of three months. The matter was taken to the Supreme Court on appeal, and the finding and sentence of the Board were upheld. In one case the chemist and druggist was cautioned and reprimanded and in another the accused person was cautioned.

The plans for the revision of the system of training and examination of chemist apprentices was completed and submitted to the Minister for his approval. Amongst other matters submitted to the Minister were proposals for the control of certain drugs and the establishment of a register of pharmacies.

From 1929 till December, 1946 the Board shared the offices of the South African Medical and Dental Council under a joint administration, the registrar of the Board being also registrar of the Medical and Dental Council.

As from the 1st January, 1947 the Board established a separate administration and offices and with the consent of the Hon. the Minister for Health has appointed its own registrar.

The work of the Board increased considerably during the year under review, as is reflected in the number of registrations effected and the number of candidates for the various examinations held.

SOUTH AFRICAN NURSING COUNCIL.

The S.A. Nursing Council was established under the Nursing Act (No. 44 of 1944). The Council has taken over the functions of the S.A. Medical Council in regard to nurses and midwives and much time has been devoted to consolidating and improving the position and status of qualified nurses and midwives. During 1946 the first election of members of the Council took place as the first Council completed its period of office of two years on the 7th November, 1946.

The great shortage of nursing personnel forms one of the most serious problems in health and medical services during the post-war period. The following figures showing the numbers of nurses registered and those in training are therefore of considerable interest.

Registrations Effected.—The following table shows the registrations effected during the period under review and the total number of names appearing on the registers kept by the Council on the 30th June, 1947.

(a) Nurses and Midwives.

Class of Nurse.	Registered on Grounds of Foreign Qualifications.	Registered after Examinations.	Restored.	Total on Registers on 30/6/47.
Medical and Surgical Nurses.....	250	681	121	10,132
Male Nurses.....	1	15	1	274
Mental Nurses....	19	32	39	1,077
Nurses for Mental Defectives.....	1	18	5	247
Fever Nurses.....	—	—	—	91
Sick Children's Nurses.....	—	—	—	9
Total Nurses.....	271	746	166	11,830
Midwives.....	95	456	76	7,859
GRAND TOTAL.....	366	1,202	242	19,689

(b) Student Nurses and Student Midwives.

Class of Student.	Registered.	Removed from Registers.	On Registers on 30/6/47.
Medical and Surgical Nurses..	1,832	1,108	4,649
Male Nurses.....	62	29	133
Mental Nurses.....	131	78	348
Nurses for Mental Defectives.	44	52	87
Fever Nurses.....	35	41	26
Total Student Nurses.....	2,104	1,308	5,243
Midwives.....	803	658	702
TOTAL STUDENTS.....	2,907	1,966	5,945

Examinations.—The following table shows the results obtained at the examinations conducted by the Council during the year ended 30th June, 1947 :—

Examination.	Passed.	Failed.
Medical and Surgical Nurses—		
Preliminary.....	896	1,049
Final.....	725	190
Male Nurses—		
Preliminary.....	25	36
Final.....	16	29
Mental Nurses—		
Preliminary.....	51	52
Final.....	37	7
Nurses for Mental Defectives—		
Preliminary.....	11	20
Final.....	11	—
Fever Nurses.....	30	1
Midwives.....	455	356
TOTALS.....	2,257	1,740

Note.—“Passed” includes candidates who passed with honours.
“Failed” includes candidates who failed in a portion of an examination only.

Training and Examination of Nurses and Midwives.

The Council is still engaged in re-drafting the regulations governing this matter. Revised regulations for the training and examination of medical and surgical nurses, in terms whereof such training will be carried out in conjunction with Nursing Colleges, have been drawn up and submitted to the Minister for his approval.

New regulations for the training of midwives are also being considered. In terms of these regulations the length of training of midwives will be doubled as the Council is of opinion that the existing periods of training of six months and twelve months for registered nurses and others, respectively, is inadequate.

The Council has also agreed in principle to institute a combined course of training for mental nurses and nurses for mental defectives and is at present dealing with the regulations which will give effect thereto.

Training Schools.

A second inspection of all hospitals and institutions approved of by the Council as training schools for nurses and midwives is being carried out by four part-time temporary inspectors. Useful information regarding the training of students has accrued to the Council as a result of these inspections. Consideration is being given to the possibility of appointing full-time inspectors which would enable a continuous and close contact between the Council and training schools to be maintained.

Table 58 indicates the numbers and types of institutions in the various provinces which have been approved by the S.A. Nursing Council for the training of the different categories of nurses.

Annual Subscriptions Payable to the Council.

Regulations regarding annual subscriptions payable to the Council by registered nurses and registered midwives and the removal of names from an re-admission of names to the registers were promulgated under Government Notice No. 1219 on the 13th June, 1947. In terms of these regulations every registered nurse and registered midwife has to pay an annual subscription of 2s. 6d. to the Council. Provision is made for the removal from the registers of persons who failed to pay their annual subscriptions as laid down in these regulations. The receipts issued in respect of these annual subscriptions also serve as documentary proof that the persons concerned are duly registered as nurses or midwives for the period indicated thereon.

Nursing Agencies.

The Council has prepared regulations regarding the control of nursing agencies and these regulations have been submitted to the Minister of Health for his approval and for promulgation.

Register of Sister Tutors.

The Council has established a register of sister tutors. Registered nurses and midwives who hold advanced qualifications approved of by the Council will be eligible for admission to this register and will be allowed to use the title of “registered sister tutor”.

Maximum Fees that may be Charged by Nurses and Midwives.

In the provisions of the Nursing Amendment Act of 1946 the Council was empowered to prescribe maximum fees that may be charged by registered nurses and registered midwives for professional services rendered by them. After due consideration of the matter the Council concluded that it is impracticable for it to exercise its powers in this regard.

Distinguishing Devices.

The provisions contained in the regulations regarding distinguishing devices, promulgated under Government Notice No. 1195 of 13.7.45 as amended by Notice No. 1766 of 23.8.46, are being implemented and the necessary epaulettes and badges have been made available for distribution to the profession.

Disciplinary Cases.

Eleven complaints against registered persons were submitted to the Council but in none of these instances was sufficient *prima facie* evidence adduced to justify the holding of a formal enquiry and accordingly no further action was taken.

Visit of Chairman and Registrar to the United States of America.

The Chairman and Registrar of the Council proceeded to the United States of America in May, 1947, for the purpose of attending the Congress of the International Council of Nurses and gathering information regarding the training of nurses in the United States and other parts of the world.

TABLE 58.—NUMBER OF APPROVED INSTITUTIONS FOR TRAINING NURSES.

Class of Institution.	Type of Training.	Cape.	Transkei.	Natal.	Transvaal.	O.F.S.
General Hospitals, Class I training schools.....	Medical and Surgical Nurses	10	7	6	14	2
General Hospitals, Class II training schools.....	Medical and Surgical Nurses	10	2	3	11	3
General Hospitals.....	Male nurses.....	3	—	4	6	—
Mine Hospitals.....	Male nurses.....	—	—	—	25	—
Mental Hospitals.....	Mental nurses.....	2	3	2	1	1
Institutions for mental defectives.....	Nurses for mental defectives	1	—	—	1	—
Infectious diseases hospitals.....	Fever nurses.....	2	—	—	—	—
Maternity hospitals (or departments of general hospitals) or maternity homes.....	Midwives.....	6	3	7	8	2

MEDICAL RESEARCH.

In terms of Section 3 of the Public Health Act (No. 36 of 1919), which defines in broad terms the functions of the Department of Health, one of the duties of the Department is “to promote or carry out researches and investigations in connection with the prevention and treatment of human diseases”. In accordance with this instruction the Department has carried out applied research investigations in connection with a variety of subjects. Among the research undertakings carried out by the Department are to be numbered the maintenance of a malaria research station at Tzaneen in the Northern Transvaal and the nutrition survey of the Union carried out under the auspices of the Department several years ago. The Department’s opportunities for carrying out clinical research are largely limited to those diseases provided for in the institutions falling directly under its control. A considerable amount of clinical research has been done at the tuberculosis hospitals while, at the leper institutions, investigations regarding new methods of treatment are constantly being carried out. Clinical research is carried out in our larger mental hospitals with the investigation of the latest treatment by various shock therapies and insulin coma. Research is also carried out with the electro-encephalogram. The staffs of the departmental pathological laboratories are heavily engaged in routine work but have nevertheless found time to carry out research investigations into a considerable variety of pathological problems.

It is well recognized, however, that the Department’s routine and administrative functions are very heavy and that it is not staffed or equipped in such a way as to enable it to carry out continuous and large-scale research projects. For this reason an arrangement was made with the South African Institute for Medical Research some years ago by which that organisation carries out laboratory research on behalf of the Department. As indicated in the section of this report dealing with laboratories, the functions of the S.A. Institute for Medical Research are divided into routine and research. The Department pays for a large proportion of the routine work carried out at the Institute on the basis of a fee for each examination made in accordance with an agreement between the Government and that body. In addition to this the Department pays to the Institute a fixed amount of £7,500 a year for research work carried out there on behalf of the Government. It has been found, however, that the volume of routine laboratory work, which by its very nature is invariably urgent, has been so great that it has seriously encroached on the time of the staff and on the other resources of the Institute, which would otherwise have been applied to research projects. Where routine and research work are carried out in the same institution and with the same, or inter-changeable staff, it is almost inevitable that the urgent and growing demands of the routine work will interfere with the carrying out of research projects. This is in fact exactly what has also occurred in the Department’s own laboratories.

The Council for Scientific and Industrial Research was established in October, 1945 at the end of the war, in order to ensure that all types of scientific and industrial

research, including medical research, are carried out with the necessary vigour and under suitable direction. The Council achieves these objects by conducting and initiating research itself, by assisting other institutions, agencies or individuals to conduct research, by fostering the training of research workers and by disseminating scientific and technical information. The question of medical research falls within the scope of the Medical and Dental Research Committee of the Council. This Committee, having considered the whole matter of the future of medical research in South Africa came to the conclusion, which was subsequently accepted by the Council, that there should be a clear distinction drawn between medical research and routine work, that the development of an institute for medical research free from routine matters was urgently needed and that an investigation should be carried out to determine whether the South African Institute for Medical Research was a suitable insitution for this purpose. After investigation of the matter the Council decided that, subject to certain conditions, this was so, and the necessary steps are therefore being taken to modify the functions of the research division of the Institute in such a way that the officers of this division are given greater freedom to indulge in research activities unhampered by the responsibilities of routine work. In order to ensure that the direction of the research work may conform to the requirements of the Council for Scientific and Industrial Research the constitution of the board of the Institute has been modified in such a way as to give that body representation. Formerly the board consisted of three members representing the Witwatersrand Native Labour Association, a subsidiary organisation of the Transvaal Chamber of Mines, three members representing the Government, and one representative of the University of the Witwatersrand. Under the new consitution there are only two representatives from the Government and two from the Witwatersrand Native Labour Association but there are also two representatives from the Council for Scientific and Industrial Research.

In addition to the statutorily established Council for Scientific and Industrial Research, a body styled the the National Council for Social Research has been established administratively under the aegis of the Department of Education. Its function is to undertake or to assist other agencies to undertake research into sociological problems, so that investigation of the social factors in human health is sponsored by this Council and not the other. The importance of social factors in health generally, and in nutrition particularly, requires no explanation. However the co-existence of these two Councils means that the control of medical and nutritional research is at the moment divided, and steps are being taken to bring the whole position under review.

TABLE 59.—PROSECUTIONS AND CONVICTIONS UNDER LAWS RELATING TO HABIT-FORMING DRUGS DURING THE YEAR ENDED 30TH JUNE, 1947.

PROVINCE.	European.		Native.		Asiatic.		Other Coloured.		Total.	
	Prose-cutions.	Convic-tions.	Prose-cutions.	Convic-tions.	Prose-cutions.	Convic-tions.	Prose-cutions.	Convic-tions.	Prose-cutions.	Convic-tions.
Cape.....	36	33	711	635	7	6	977	956	1,731	1,630
Natal.....	12	11	1,909	1,845	125	118	109	105	2,155	2,079
Transvaal.....	63	60	3,388	3,276	10	9	298	276	3,759	3,621
Orange Free State.....	9	9	324	315	—	—	20	20	353	344
UNION.....	120	113	6,332	6,071	142	133	1,404	1,357	7,998	7,674

ADMINISTRATION OF THE MEDICAL, DENTAL AND PHARMACY ACT, No. 13 OF 1928.

Habit-forming Drugs.

During the year under review, the total number of prosecutions in the Union, as disclosed in the above Table, in respect of contraventions of the laws relating to dagga and other habit-forming drugs, showed a decided decrease as compared with the figure for the previous year. There were 7,993 prosecutions relating to offences connected with dagga and 5 in respect of other habit-forming drugs. In the course of the investigations a large quantity, amounting to some 13½ tons was confiscated and destroyed after the legal proceedings had been completed. Confiscations of opium and other narcotic drugs illegally imported were very small and were disposed of to firms of chemists and druggists or were taken over by the Department for use in clinics and hospitals.

Stocks of narcotic drugs in the Union have now reached a normal level after having been depleted during the war years. As a result, the importation of narcotic drugs has decreased since last year.

The following figures reflect the quantities of narcotic drugs imported for the period ending 30th June, 1947: raw opium, 311½ lb.; medicinal opium, 70 lb.; opium in the form of extracts and tinctures, 58 lb.; Indian hemp in the form of extract, 6½ lb.; morphine, 94½ lb.; diamorphine, 32⅔ lb.; cocaine, 32⅔³/₁₀ lb.; methylmorphine (codeine), 88⅔ lb. and ethylmorphine (dionine) ⅔ lb.

The quantities of narcotic drugs exported to the adjoining territories which required special export authorisations were: medicinal opium, ½ lb.; opium in the form of extracts and tinctures, 2 lb.; morphine, 3⅔ lb.; diamorphine, 2½ ozs.; cocaine, 3 ozs.; methylmorphine, 2¾ ozs. and ethylmorphine, 6¼ ozs.

Registers of habit-forming drugs which must be maintained by chemists and druggists in accordance with the provisions of Chapter VI of the Medical, Dental and Pharmacy Act, No. 13 of 1928, have been inspected regularly by officers of the Department. In the larger towns and places readily accessible by rail, chemists' obligations under the law have been strictly observed. It is regrettable, however, that in areas where inspectors are not in the habit of paying frequent visits, there is not the co-operation which is observed in the large towns and there is considerable laxity in carrying out the requirements of the Act.

Medical practitioners continue to prescribe narcotic drugs in quantities in excess of strictly legitimate requirements according to reports furnished by inspectors. Investigations have been carried out which, it is hoped, will when brought to finality go a long way to eliminate this very undesirable illegal practice.

Poisons.

Departmental inspectors, during the year, have carried out the inspection of general dealers premises in connection with the stocking and sale of poisons. Carelessness in the handling and storage of poisons is still very prevalent and

prosecutions have been instituted wherever flagrant disregard for the provisions of Act No. 13 of 1928 have been reported. Not until such time as the number of certificates for the sale of poisons has been reduced considerably, can the Department foresee any improvement in the position in this respect.

The Department's prompt action in recommending to Parliament that, as a matter of extreme urgency, the new synthetic drug "Pethidine" be included in the 5th Schedule to Act No. 13 of 1928 as a habit-forming drug, bore fruit in that this drug was included in the Schedule by Proclamation No. 27, dated 3rd February, 1947, in the Government Gazette, with effect from the date of publication.

New synthetic narcotic drugs, which for the most part were developed during the war to fill an urgent need are making their appearance on the market. Unlike the opium derivatives and cocaine they are produced from non-narcotic raw materials which have legitimate uses other than the manufacture of narcotic drugs, and their potential danger lies in the ease with which they can be manufactured. They are thus outside the control of International Conventions at the present time. The Department is aware of the dangers attendant upon the importation and use of these drugs and is awaiting the lead from International organisations before taking definite action to bring them under control in the Union.

ADMINISTRATION OF THE FOOD DRUGS AND DISINFECTANTS ACT No. 13 OF 1929.

During the year under review, powers under Section 2 (3) of the Food, Drugs and Disinfectants Act were delegated to the Divisional Council of the Cape, *vide* Government Notice No. 1815, dated 30.8.46 and Alberton Municipality *vide* Government Notice No. 1375, dated 30th July, 1946.

Samples taken for analysis under the above Act show an increase of 322 over the number taken last year. This figure would have been greater, but for the fact that a number of local authorities are not making full use of the number of free samples allowed them.

Table 60 summarises the position in this regard.

TABLE 60.—SAMPLES TAKEN FOR EXAMINATION OR ANALYSIS UNDER ACT No. 13 OF 1929, DURING THE YEAR ENDED 30TH JUNE, 1947, AND THE RESULTS.

Place.	Total Taken.	Number Analysed or Examined.	Number Found Adulterated or Incorrectly or Falsely Described.	Prose-cutions.	Con-victions.
Ports of the Union.....	143	143	—	—	—
Cape Province.....	1,522	1,515	425	133	114
Natal Province.....	681	681	13	4	3
Transvaal Province.....	3,499	3,495	638	205	145
Orange Free State Province.....	155	155	9	9	6
TOTAL.....	6,000	5,989	1,085	351	268

ROYAL TOUR.

During the year under review the visit of the Royal Family to the Union Took place. The Department was of course responsible for ensuring that the measures taken to protect the party from infections and preventable disease were adequate. The Department accordingly enquired into health conditions and the arrangements to be made for the safety of the Royal Party from a health point of view in all the areas where it had been arranged that the Party would visit. This was done in collaboration with all the health authorities concerned, viz. the various local authorities, the South African Railways administration and the bodies in charge of the various parks which were to be visited. The Department also, in conjunction with the Public Works Department and in some cases assisted by the local authority concerned, took steps to ensure the safety from a health point of view of the Royal Party while they were living in the various official residences at Cape Town, Pretoria, Durban and Bloemfontein.

Throughout the tour particular attention was paid to the safety of milk and water supplies and to all types of food which are liable to contamination. Only water which was known to be of a very high standard of purity was used. It was laid down as a general principle that all milk to be supplied to the Royal Party should not only come from dairies which maintained a very high standard of hygiene but that all milk handlers should be Vi-tested to exclude any possible typhoid "carriers" and that the milk should also be efficiently pasteurized under the control of the local authority concerned. Where it was impossible to obtain pasteurized milk all milk was boiled. Great care was taken to exclude possible "carriers" from among the people handling, preparing or serving food to the Royal Party. Steps were also taken to ensure that the party was not subjected to annoyance by flies, mosquitoes or other insects.

The Department approached all the large municipalities which employ full-time Medical Officers of Health, and which the Royal Party was visiting, offering to give them advice on any specific health matters in connection with the Royal Tour. The smaller local authorities, which do not employ full-time Medical Officers of Health and which were to be visited by the Royal Party, were not only offered advice, but each one was visited by a senior medical officer of the Department in order to discuss in detail the arrangements which they had made, or which they proposed to make, and to ensure that the measures to be taken were suitable and adequate. The arrangements which were to be made at the various parks were also investigated in detail to ensure the complete safety of the Party. In this connection it may be mentioned that the visit of the Royal Party to the malarious areas of both Natal and the Transvaal at the time of year when malaria is most likely to be prevalent in those regions necessitated the most careful preparation and control measures in the areas concerned by both this Department and by the Railway administration.

During a very large proportion of the tour the Party was actually living on the Royal Train either travelling or staged at the various smaller places which were visited. It was accordingly necessary for the South African Railways administration to take special precautions to ensure their comfort and safety from a health point of view. Principles were discussed and agreed upon with representatives of this Department and the following extract from the Annual Report of the Deputy Chief Health Officer (Railways) describes briefly the measures which were taken:—

"The Health Organisation was responsible for health and sanitation arrangements for the Royal Train. As the Royal visitors spent almost the entire period of their stay on the Train itself the arrangements concerned required to be made with considerable detail and as with most Departments of the Railway, the bulk of the work had to be completed long before the Royal family arrived in South Africa. A few examples of the require-

ments of the tour indicate how extensive and important this preliminary work was, e.g. all water supplied to coaches had to be pure and safe, all foodstuffs including milk had to be of great purity and quality, all stewards, cooks, bedding attendants, etc., had to be tested to exclude carriers of disease, at each stop measures had to be taken to dispose of waste matter in an hygienic manner. Further, this Organisation was able to advise the Management concerning the salubrity of proposed staging areas as regards malaria, etc.

The health inspector of the Western Transvaal System was detached to travel with the train throughout the tour whilst the Assistant Railway Health Officers and health inspectors accompanied the train over their respective Systems. No serious hitches occurred at any point and the health organisation functioned remarkably well. System health personnel cheerfully worked at all hours of the night, snatched a few hours sleep under uncomfortable conditions and ate irregular and indifferent meals with little complaint.

The health of passengers and personnel on the train was good.

The following are particulars of some of the more important arrangements undertaken by this office:—

- (1) *Water Supply*.—Bottled Albion spring water was used on both the Royal and Pilot trains. Apart from drinking water, however, provision had to be made for ablution water on this protected tour. With a view to ensuring safe and satisfactory water at each point where underframe tanks required to be replenished, samples of water for bacteriological examination and chemical analysis were taken from some 27 sources of supply. At 7 points where water was found to be unsuitable or where water was required but not available, use was made of travelling tanks to convey water from a satisfactory source. The Chemist attached to the Chief Mechanical Engineer, Pretoria, rendered valuable assistance by treating 4 water supplies which was unsuitable from the chemical aspect.
- (2) *Sanitation*.—Pails properly screened by means of canvas screens were used for the collection of nightsoil at staging areas. A special gang of reliable Non-Europeans under the control of the sectional health foreman were in attendance at staging areas and were responsible for the placing and removal of pails.
- (3) *Disposal of Waste Water*.—Waste water from showers, baths and wash hand basins was discharged onto the track. Dining car waste water was discharged into small French drains.
- (4) *Milk and Food Supplies*.—In conjunction with the Union Health Department it was arranged for efficiently pasteurized milk and cream only to be used. Where pasteurized milk was unobtainable the milk was boiled before use.

A number of dairies were inspected by my staff with a view to obtaining the best and purest milk. In deciding on supplies attention was paid particularly to the following:—

- (a) A good general standard of hygiene.
- (b) Vi-testing of milk handlers.
- (c) Efficiency of pasteurization.
- (d) A satisfactory dirt test.

Medical Officers of Health of the different towns gladly co-operated with this office in furnishing information and checking up on selected supplies and their methods of production.

Foodstuffs and vegetables from the best and most reliable sources were used on the trains.

Anti-malarial and Anti-tick Measures.—The Royal route passed through the following malarial areas : North Coast Natal, Low Veld from Waterval Boven to Malelane and staged overnight at White River in the Low Veld. Anti-malarial measures were carried out in these areas in conjunction with the Union Health Department. In addition to veld measures both the Royal and Pilot trains were sprayed with D.D.T. and Pyagra and mosquito nets were used.

At the following points functions were held in the veld where a danger of fleas and ticks existed : Ebb and Flow and Saasveld in the Knysna area, Cambridge, Buhrmanskop and Lobatsi. The veld at these points was thoroughly treated with D.D.T. a considerable time before the arrival of the Royal Party.

Details of general health measures were furnished to both the Protectorate Health Organisation and Rhodesia Railways. In addition to this the Health Inspector who accompanied the trains throughout

the Union also travelled with the trains through Rhodesia in an advisory capacity to the Rhodesia Railways."

It is very gratifying to be able to record that the arrangements made were entirely effective and that no single case of infectious or preventable disease was reported among any of the considerable number of persons travelling with the Royal Party.

STAFF.

The Staff Chart (Table 61) in this section shows the departmental organisation.

Great difficulty has been experienced in obtaining suitable replacements and recruits for the vacancies which occurred as a result of loss of staff and the vast expansion of the Department, and consequently many posts were vacant at the end of the year.

During the year under review the death of several staff members occurred and the following are recorded with deep regret :—

- Dr. J. H. Stals, District Surgeon.
- Mr. B. J. Zeederberg, Male Nurse.
- Mr. E. C. Connolly, Charge Male Nurse.
- Miss H. A. Jones, Sister.

TABLE 61.—CHART OF DEPARTMENT OF HEALTH AS AT 30TH JUNE, 1947.

Minister of Health (DR. THE HON. H. GLUCKMAN).

Secretary and Chief Health Officer (DR. G. W. GALE), Under-Secretary (N. A. G. REELER), Departmental Chief Clerks (D. J. M. MARAIS) and (B. C. MULLAN).

Head Office.	Regional Offices (including Pathological Laboratories and Port Health Staff).	Tuberculosis.	Mental Hospitals.
Deputy Chief Health Officers (Drs. A. J. van der Spuy and B. M. Clark) Chief of the Division of Tuberculosis Services (Dr. B. A. Dormer) Chief of the Division of Social Medicine (Dr. D. I. Landau) Chief of the Division of Nutrition and Health Education (Dr. R. J. Smit) Commissioner for Mental Hygiene (Dr. W. Russel) Chief of the Division of Venereal Diseases (vacant)	Cape Town :— Deputy Chief Health Officer (Dr. H. S. Gear) Durban :— Deputy Chief Health Officer (Dr. F. W. P. Cluver) East London :— Deputy Chief Health Officer (Dr. J. J. du P. le Roux) Bloemfontein :— Deputy Chief Health Officer (Dr. A. L. Ferguson) Umtata :— Assistant Health Officer (Dr. N. S. Turnbull) Johannesburg :— Assistant Health Officer (Dr. P. C. Eagle) Ecologist and Chief Rodent Officer (Mr. D. H. S. Davis) Port Elizabeth :— Port Health Officer (vacant) Total Number of Posts :— Professional and Technical. 97 Administrative..... 4 Clerical..... 41 Other Europeans..... 69 Non-Europeans..... 56 Temporary (all grades)..... 1	King George V Springfield Hospitals, Durban, Medical Superintendent (Dr. B. A. Dormer, acting) Nelspoort/Sanatorium : Medical Superintendent (Dr. H. R. Ackermann) Rietfontein, Johannesburg : Medical Superintendent (Dr. J. H. Loots) West Lake, Cape Town : West End, Kimberley and Wentworth, Durban, Tuberculosis Hospitals : Establishments recommended but not yet functioning Springbok Tuberculosis Hospital (Part-time Superintendent) Total Number of Posts :— Professional and Technical. 120 Administrative..... 7 Clerical..... 48 European Nursing..... 543 Other Europeans..... 157 Non-Europeans..... 1,560 Temporary (all grades)..... 6	Weskoppies Hospital, Pretoria (Mental) Physician Superintendent and Deputy Commissioner for Mental Hygiene (Dr. P. J. G. de Vos) Town Hill Hospital, Pietermaritzburg (Mental) Physician Superintendent (Dr. W. H. Myburg) Komani Hospital, Queenstown (Mental), Physician Superintendent (Dr. A. W. H. Cheyne). Alexandra Institution, Cape Town (Feeble-minded) Physician Superintendent (Dr. J. A. van Heerden). Valkenberg Hospital (Mental), Physician Superintendent (Dr. G. J. Key). Tower Hospital, Fort Beaufort (Mental) Physician Superintendent (Dr. T. E. Cheze-Brown). Fort Napier Hospital, Pietermaritzburg (Mental) Physician Superintendent (Dr. A. S. van Coller). Kowie Hospital, Port Alfred (Mental) Physician Superintendent (Dr. P. C. Uys). Oranje Hospital, Bloemfontein (Mental) Physician Superintendent (Dr. I. L. Vermooten). Sterkfontein Hospital, Krugersdorp (Mental) Physician Superintendent (Dr. J. C. Twomey). Witrand Institution, Potchefstroom (Feeble-minded) Physician Superintendent (Dr. K. Gillis). Fort England Hospital, Grahamstown (Mental) Physician Superintendent (Dr. B. P. Pienaar). Total Number of Posts :— Professional and Technical..... 76 Administrative..... 8 Clerical..... 54 European Nursing..... 1,580 Other Europeans..... 615 Non-Europeans..... 1,380

Malaria.	Leprosy.	Health Centre Service.	Venereal Diseases.	Housing Branch and Controller of Letting.
Senior Malaria Officer, Transvaal (Dr. D. H. S. Annecke) Total Number of Posts :— Professional and Technical..... 9 Clerical..... 7 Other Europeans..... 23 Non-Europeans..... 10 Temporary (all grades) 565 Natal :— Professional and Technical..... 2 Other Europeans..... 12 Non-Europeans..... 82 Temporary (all grades) 162	Pretoria Leper Institution : Medical Superintendent (Dr. A. R. Davison) Emjanyana Leper Institution : Medical Superintendent (Dr. P. A. Thornton) Amatikulu Leper Institution : Superintendent (Mr. I. G. C. Scotney) Mkambati Leper Institution : Superintendent (Mr. J. P. J. Kolver) Bochem Leper Institution, Superintendent (J. G. H. Franz) Total Number of Posts :— Professional and Technical..... 8 Administrative..... 4 Clerical..... 7 European Nursing... 38 Other Europeans... 56 Non-Europeans..... 317	Training Scheme for Health Personnel, Durban: Medical Officer-in-Charge (Dr. L. S. Kark) 29 Health Centres have been established although some are not yet functioning Total Number of Posts :— Professional and Technical..... 114 Administrative..... 1 Clerical..... 27 European Nursing... 37 Other Europeans... 66 Non-Europeans..... 799 Temporary (all grades) 8	Rietfontein Hospital, Johannesburg : Medical Superintendent (Dr. J. H. Loots) and several smaller hospitals at Lydenburg, Kuruman, Taungs, Idutywa, Kingwilliamstown, Vryburg, Mafeking, Zcerust with a total staff of 15. Bochem, Elim and Jane Furse Memorial Hospitals receive grant-in-aid from the Department.	Director of Housing (Maj. J. C. Collings). Head Office, Pretoria. Total Number of Posts :— Administrative.... 8 Clerical..... 37 Other Europeans.. 3 Non-Europeans... 3 Temporary (all grades)..... 48 Regional officers are established at Pretoria, Johannesburg, Cape Town, East London Port Elizabeth, Kimberley, Bloemfontein. Total Staff all temporary, 80. Controller of Letting with local representatives at Pretoria, Johannesburg, Durban, Cape Town, Benoni, Krugersdorp, and Germiston with a total temporary staff of 75.

ESTABLISHMENT OF REGIONAL HEALTH OFFICES AT BLOEMFONTEIN AND EAST LONDON.

The National Health Services Commission recommended the establishment of some twenty regional offices of the Department throughout the country in order to develop a closer and greater measure of control of health services. Two important steps in this direction were taken during the year under review when regional offices were established at Bloemfontein and East London respectively, each under the charge of a Deputy Chief Health Officer.

Ever since its establishment in 1920 the Department has had offices at Cape Town and Durban which served as regional offices for the Cape Province and Natal respectively. It has long been felt however, that from a health point of view the Cape Province was too extensive and the type of community too varied for it to be administered as one region. The Transkei, a purely Native area, situated many hundreds of miles from Cape Town and actually more accessible, at least by rail, from Pretoria, forms an entity which both geographically and socially is so far removed from Cape Town that health administration from that office was difficult, although the Department for many years had a representative at Umtata. Similarly the Border districts and the Ciskei are far removed from Cape Town and have community of interests particularly centred in the developing port of East London.

It was therefore decided to establish a regional office at East London to administer the Native territory of the Transkei, the Ciskei and neighbouring districts. The dividing line was drawn between the latter districts and the predominantly European farming districts of the Cape Midlands, which still fall under the Cape Town office. The newly established region has an area similar in size and a population similar in numbers and racial distribution to that of Natal. The Cape Town region, although still very extensive, has been further reduced and thus made more manageable by the detachment of certain districts north of the Orange River, as will be described later.

At East London the office was established by and is under the charge of Dr. J. J. du Pré le Roux, who for several years during the war had been acting in charge of the Cape Town office and is familiar with the health problems of the area. Great difficulty was at first experienced in securing the necessary office accommodation. This problem was finally solved when the old military hospital at Collondale was made available to the Department for this purpose, although it had previously been earmarked for other purposes, and on 15th March, 1947 the office started to function.

Although the area falling under the control of this office is not large it is one of the most densely populated in the Union. The population is approximately 2,000,000 of whom some three-quarters are Natives living under primitive conditions on trust lands. Typhus, smallpox and plague are endemic and many other public health problems exist as a direct result of the primitive living conditions of the vast majority of the population. In the Transkei the entire duty of controlling infectious and epidemic diseases is an executive function of this office, with the assistance of the sub-office at Umtata and subordinate field staff. The control of the Umtata Native Clinics and of all other rural clinics in the Transkei and Ciskei is also a function of this office.

During the short time that the office has been in existence, apart from the daily duty of dealing with problems as they arise, much very useful ground work has been done to ensure that the foundations of the Department's regional organisation in this area are soundly laid.

The Orange Free State has, from a Departmental point of view, been administered directly from head office in Pretoria. It is considered, however, that the establishment of a regional office at Bloemfontein will result in a closer

and more intimate understanding and knowledge of the health problems and difficulties of that province and will thus be generally beneficial to health services. In the past the Orange Free State has formed a comparatively homogeneous region with health problems common to the whole area and similar to those of the southern portion of the Transvaal, apart from the Witwatersrand. The recent beginnings of gold mining on a large scale in the Oendarsrust area, and all the associated developments which will undoubtedly follow, will bring with them health problems of a type new to that part of the country. It is essential that the authorities and other bodies concerned should build wisely in order to avoid the development of unnecessary health problems such as have arisen in the older industrial areas. Thus the development of the Orange Free State goldfields gave emphasis to the need, already well recognised, for the establishment of a regional office at Bloemfontein. In addition to these considerations Kimberley and the neighbouring districts of the Northern Cape are far removed from Cape Town and in some respects are more closely associated with the adjoining territory of the Orange Free State. It is considered necessary to develop a closer measure of contact with the areas of the Northern Cape than has been possible from Cape Town.

It was accordingly decided to establish a new region comprising the whole Orange Free State and all those districts in the Cape Province, except Gordonia, lying north of the Orange River. It was also decided to make the headquarters of this region at Bloemfontein as being the most central town and the provincial capital.

The control of this region was entrusted to Dr. A. L. Ferguson, an officer of many years experience in the Department, and the office was opened in St. George's Street on 1st February, 1947. The area under the control of this office is extensive and is one in which plague is highly endemic and several other infectious diseases commonly occur. There are also the usual health problems associated with a community living in small towns and in rural areas, and as previously mentioned attention is focussed on the need for adequate health control by the rapid development of gold mining in the Orange Free State. In the short time which has elapsed since the establishment of this office the Departmental organisation there has proved most useful in exercising immediate and close control over outbreaks of plague and other epidemic diseases. In addition to this a large number of health inspections have been made of smaller towns in the Orange Free State and Griqualand West, many of which had not previously been inspected, and much useful advice has been offered to the municipalities concerned. The Department is thus rapidly extending its influence throughout the area and at the same time is keeping in close touch with the mining development which is taking place.

PUBLICATIONS BY MEMBERS OF THE STAFF.

DR. H. S. GEAR, Deputy Chief Health Officer, Cape Town :—

“World Health Organisation”, published in *South African Medical Journal*, September, 1946.

DR. B. M. CLARK, Deputy Chief Health Officer, Pretoria :—

“Arsenical Poisoning of Humans Resulting from Cattle Dipping Tanks”, published in *South African Medical Journal*, 14th September, 1946.

DR. B. A. DORMER, Chief, Division of Tuberculosis Services :—

“Intrabronchial Administration of Penicillin and Sulfonamide” (with Dr. F. J. Wiles), published in

Clinical Proceedings, Vol. 6, No. 1, March, 1947.

“Pseudo Tumor of the Diaphragm” (with Dr. T. W. Randall). A Radiological case note, published in *Clinical Proceedings*, Vol. 5, No. 6, August, 1946.

DR. I. GORDON, Senior Government Pathologist, Cape Town :—

“ A Case of Fatal Buphanine Poisoning ”, published in *Clinical Proceedings*, May, 1947.

DR. H. A. SHAPIRO, Assistant Pathologist, Cape Town :—

“ The Limited Value of Microscopy of Lung Tissues in the Diagnosis of Live and Still Birth ”, published in *Clinical Proceedings*, Vol. 6, No. 4, June, 1947.

“ Diffuse Neuronal Injury ”, published in *Clinical Proceedings*, Vol. 6, No. 2, April, 1947.

DR. F. J. WILES, Medical Officer, King George V Jubilee Hospital for Tuberculosis, Durban :—

“ Some Aspects of the Tuberculosis Problem ”, published in *National Health Journal*, 1947.

DR. W. H. LE RICHE, Medical Officer-in-Charge, Knysna Health Centre :—

“ Food Yeast in the Feeding of Infants: Its use in cases of mild Diarrhoea ”, published in *South African Medical Journal*, 10th August, 1946.

“ Breast Feeding as a Clinical and Social Problem ”, published in *Clinical Proceedings*, Vol. 5, No. 9, pp. 394-403.

ACKNOWLEDGEMENTS.

My thanks are due to all other Government Departments, the South African Railways and Harbours Administration, the four Provincial Administrations and the numerous local authorities for their continued co-operation with this Department. This cooperation has largely contributed towards the successful functioning of the Department. Particular mention must be made of magistrates and

officials of the Department of Native Affairs and of the Railway Health Office with whom the staff of this Department has worked in very close collaboration. I also wish to express my thanks to all those other official bodies with whom the Department has been closely associated. I refer especially to the South African Medical and Dental Council, the South African Pharmacy Board, the South African Nursing Council, the South African Institute for Medical Research and to the Council for Scientific and Industrial Research.

I should like also to express my sincere appreciation of the loyal and efficient manner in which the administrative, professional and clerical officers and the typists of the Department of Health have carried out their duties under extremely difficult conditions. During the year under review the activities of the Department have increased in a number of different ways. This has been achieved without a corresponding increase in the staff, which even previously was heavily overburdened. It is only through very many hours of overtime work, which has been done uncomplainingly by numerous officers, that it has been possible for the Department to carry out its many functions.

Finally, my thanks are due to Dr. Maule Clark, Deputy Chief Health Officer at Pretoria, upon whom has fallen the main burden of preparing this report.

I have the honour to be,

Sir,

Your obedient servant,

G. W. GALE,
Secretary for Health.

PRETORIA.

ANNEXURE A.

RESOLUTIONS OF MEETING OF NATIONAL HEALTH COUNCIL, 1947.

The following recommendations of the National Health Council were adopted at the first meeting held at Bloemfontein on 11th-14th August, 1947. The Department's views and the action taken in connection with each item are stated immediately after each recommendation. Certain other resolutions of the National Health Council are not recorded here as they are statements of the views of the Council and, as they are not recommendations, they do not appear to call for comment on the part of the Department:—

INDUSTRIAL HYGIENE.

"That this Council urges the establishment, in the interests both of the health of industrial workers and of industrial efficiency, of a national advisory body for industrial hygiene and welfare, and recommends that any measures taken in consequence be integrated with national health services".

This recommendation received the attention of the Government which was in office at the time that the resolution was adopted. The Government was, however, unable to see its way clear to give effect to the recommendation. No action has, therefore, been taken by the Department.

MILK SUPPLIES.

"That the Standing Committee refers the question of milk supplies to the Department of Health with the request that the Departments of Health and Agriculture take the necessary steps to implement the recommendations of the Conference on Milk Supplies held at Pretoria on the 20th November, 1946, so that early action can be taken with the production of a safe, clean and wholesome milk supply in the Union of South Africa.

The Department is very anxious to bring about an improvement in the standard of milk supplies, which are of such great importance in connection with the spread of infectious diseases, especially typhoid fever. The hygienic control of the milk supply in any particular area is, however, a matter which can only be carried out by the local authority concerned and the Department therefore loses no opportunity of impressing on such authorities and on the general public, the need for improvements in this connection.

In November, 1946, the Department convened an inter-departmental meeting with the Agricultural Department to discuss the technical aspects of the question. A number of the larger municipalities were also invited to send representatives to the meeting in order that the departmental officers might hear their views. There has been considerable misunderstanding regarding this meeting. In spite of the fact that the letters, which were sent to the municipalities concerned inviting them to send representatives, made it clear that such representatives would attend the inter-departmental meeting in an advisory capacity only, these representatives in many cases regarded the meeting as a conference at which they were full members. Owing to the fact that the official who should have taken the chair was not able to do so on account of illness, the position was apparently not adequately clarified. The result is that the meeting has since been regarded as a conference and is referred to as such even in the minutes of the National Health Council. In actual fact, the so-called "conference" had no status and the resolutions which were framed had no authority but were simply recommendations of the inter-departmental committee to the two Departments concerned. It was in this light that the Department of Health considered the recommendations.

The discussions covered a wide field and it is of interest to record the further developments in connection with these matters. All the subjects which are referred to below were discussed by the inter-departmental committee with the exception of the school-feeding scheme. This subject is, however, included here as it is of such importance:—

(1) DISEASES OF DAIRY CATTLE.

- (a) *Tuberculosis in Bovines*.—The Department's views regarding the question of the proposed institution of a scheme for the eradication of bovine tuberculosis are indicated in the subjoined extract from a letter which was addressed to the Secretary for Agriculture on 10th April, 1947:—

"It is considered that the expenditure involved in the application of this scheme would be so great that there should first be an investigation to ascertain whether the bovine type of tubercle bacillus does in fact cause a large amount of human disease in South Africa. Even if it were shown that a considerable amount of non-pulmonary tuberculosis is of bovine origin, as is known to be the case in certain other countries, this would represent, in the Union, a relatively small amount of the disease compared with the vast amount of pulmonary tuberculosis, which is thought to be almost entirely of human origin. It is this latter problem which is far more pressing from the human point of view.

In view of the fact that our information regarding the importance of the bovine bacillus in the human tuberculosis problem is inadequate, this Department would not be justified in recommending to the Government that action should be taken to implement the proposed scheme for the eradication of bovine tuberculosis at this stage.

It is, however, suggested that further bacteriological investigations should be carried out with a view to determining the importance of the bovine bacillus in human tuberculosis. The necessary investigations would include the typing of specimens of pathological material from human cases of tuberculosis throughout the country. As a preliminary step the Department's Chief Tuberculosis Officer has been asked to discuss this matter informally with the Director of Veterinary Services at Onderstepoort, or his deputy, and with the Director of the South African Institute for Medical Research in order that he may be able to formulate a scheme for submission to this Department. We shall, of course, then consult you before deciding on any further action."

Since then the Chief Tuberculosis Officer has arranged that the investigations will be carried out by the departmental laboratories.

- (b) *Brucellosis, Mastitis, Lumpy Skin Disease of Bovines*.—The two former diseases cause undulant fever and sore throats respectively in humans. Lumpy skin disease is not known to be pathogenic to man but on the advice of the Division of Veterinary Services the Department always recommends that the milk from a cow suffering from this disease should not be used during the febrile stage.

The control of all these diseases, and other diseases of cattle, is essentially a veterinary matter and has been referred to the Department of Agriculture. In view, however, of the prevalence of both mastitis and contagious abortion (brucella infection) in cattle and the great difficulty in controlling these conditions, the diseases constitute one of the reasons why milk for human consumption should be pasteurised.

(2) DAIRY WORKERS.

- (a) *Health of Dairy Workers.*—The Department is in entire agreement with the committee that farmers should pay particular attention to the health of dairy workers who should be properly trained for the work. It asked the United Municipal Executive to bring this matter to the notice of all municipalities as it is essentially a matter for local control.
- (b) *Testing of Dairy Workers for Typhoid Carrier State.*—It has frequently been urged that all dairy workers should be tested for the carrier state. There is no doubt that this would help considerably in safeguarding the health of the community. Many municipalities endeavour to test all such workers, sometimes making it a condition of registration of the dairy. There are, however, considerable technical difficulties in establishing whether or not a person is a carrier and still greater administrative difficulties in disposing of such carriers as may be discovered. The Pretoria system of maintaining a typhoid carrier camp has worked reasonably well, but, although the system is well known, it has apparently not been adopted by other municipalities.

The question of endorsing Natives' passes to the effect that they are carriers has again been discussed with the Native Affairs Department, but they do not favour the suggestion as it is felt that such Natives would be prejudiced in trying to obtain any form of employment. An alternative suggestion that they have made, viz. that those Natives who have been tested and found not to be carriers should have their passes endorsed to this effect, has been examined. It is, however, open to objections and is not considered suitable.

Legally there is no provision in the Public Health Act by which the testing of dairy employees could be made compulsory and, as far as is known, there is no provision in any other legislation. The question of the introduction of legislation on the matter should be considered when the new Health Act is framed, but the views of the Department of Native Affairs will have to be borne in mind. In the meantime it seems that the matter can only be left in the hands of the municipal authorities who should endeavour to get the co-operation of the dairy farmers supplying milk in their areas.

(3) DAIRY HYGIENE.

- (a) *Uniform By-laws.*—At the inter-departmental committee meeting it was recommended that a "dairy code" should be drawn up. Prior to this the Department was in communication with all the provincial administrations regarding a suggestion that uniform dairy by-laws should be introduced in all the larger towns. Correspondence on this subject has been continued with a variable degree of success with the different provinces, none of which has yet agreed to the principle. The present position is that a set of uniform by-laws (including dairy by-laws) which has been prepared by the Reef municipalities is under consideration by the Transvaal Provincial Administration. If these by-laws are approved they may serve as a basis for further discussions between this Department and the Agricultural Department and possibly later with the other provincial administrations.
- (b) *Grazing on Sewage Farms.*—The inter-departmental committee recommended that the grazing of dairy cattle on sewage farms should be prohibited. This matter was referred to the United Municipal Executive for an expression of their opinion as it was realised that such a decision would have very far-reaching effects. That body considered that this Department should lay down the policy in this connection. Apparently arising out of the suggestion, however, a conference of interested parties was called jointly by the Witwatersrand Public Health Consultative Committee and the Institute of Sewage Purification to discuss the problem. This meeting was of opinion that, subject to proper safeguards such as the efficient treatment of sewage, there is no danger to health by the grazing of cattle on sewage farms. In view of this the matter has not been further pursued by the Department.

(4) MILK STANDARDS.

At the inter-departmental meeting in November, 1946, it was considered that this whole subject needed further investigation. Further meetings of an inter-departmental committee of this Department and the Department of Agriculture have been held at which both chemical and bacteriological standards of milk have been very fully discussed.

It was finally decided that on the information available there is no justification for any alteration in the chemical standards as at present laid down but that further investigations regarding the chemical properties of milk under South African conditions are necessary. These investigations are being carried out by the Department of Agriculture.

As regards bacteriological standards, after full discussion it was decided that in view of greatly varying conditions it would be impracticable to lay down any definite standards for the country as a whole at this stage. Bacteriological standards are, of course, laid down in municipal by-laws in all the larger towns. It was considered that much more knowledge was required not only about the bacteriological standards of South African milk but also about the most suitable laboratory methods to be employed in the examination of milk. These investigations are being carried out by the Government Pahtologist at Durban.

(5) PASTEURISATION OF MILK.

The Department is strongly in favour of pasteurisation as a measure of protection of the public health. It has not however, expressed itself in favour of widespread compulsory pasteurisation because this question is inevitably and intimately connected with the commercial aspects of milk distribution and sale, a matter on which the Department is not in a position to express an opinion.

The Department is convinced that, however carefully dairies and milk handling are controlled from a hygienic point of view, this does not do away with the need for pasteurisation in order to render the milk absolutely safe for human consumption. The Department loses no opportunity of impressing this upon local authorities and on the public generally.

The question of the nutritive value of pasteurised milk has been questioned in some quarters. This has been considered by the National Nutrition Council which adopted the following resolution :—

“ This committee is satisfied that all scientific and medical evidence on pasteurisation of milk has proved that, provided that pasteurisation is properly carried out, there is no significant loss of nutritional value.”

The value of the efficient pasteurisation of milk is no longer in doubt and has been advocated by the Department for many years, provided the cost of the milk is not unduly increased.

Whether it is practicable to carry out pasteurisation on a large scale in any particular town is a matter which depends largely on local conditions. This is, therefore, a matter for each municipality to decide in respect of its own area.

Where, as is increasingly the case in the larger towns of the Union, producers send their milk to centralised distributing depots, pasteurisation in bulk at those depots would add very little to the cost of the milk. However, in the case of producers who distribute direct to their customers, compulsory pasteurisation at a central plant some distance from their dairies would increase the cost of the milk, not on account of the cost of the pasteurisation *per se*, but on account of the added transport costs.

The question, therefore, is not one which can be dealt with solely from the public health angle, as pasteurisation may lead to an increase in the cost of the milk to the consumer, especially in the case of the smaller municipalities.

Thus, although the Department is entirely satisfied as to the value of pasteurisation from a purely health point of view, the question whether compulsory pasteurisation should be introduced in any area is a matter for the municipality concerned to decide.

(6) MARKETING AND DISTRIBUTION OF MILK.

The inter-departmental committee made certain recommendations regarding improvements in the transportation of milk by road and rail. It was considered that these matters were best dealt with by the Division of Dairying of the Department of Agriculture and they were, therefore, referred to that Department.

(7) PROPAGANDA.

The inter-departmental committee considered that more propaganda regarding the need for improvement in milk supplies was necessary.

Propaganda regarding the need for the consumption of more protective foods, including milk, has been carried on for years and will presumably be intensified by the newly-created Division of Nutrition and Health Education. The public is in general well aware of the need for improved hygiene in milk production and, in fact, there is a tendency for them to think that the production of “ clean ” milk (which of course is not necessarily safe milk) does away with the need for pasteurisation. This, of course, is not the case. In fact, it is in connection with pasteurisation that the greatest need for propaganda exists. There is so much misunderstanding and misconception on this subject, even among the educated public who are otherwise well informed, that there is a great need for education of public opinion. The general pasteurisation of milk, wherever that is practicable, is obviously necessary if the frequently recurring milk-borne outbreaks of typhoid fever are to be prevented. Pasteurisation cannot, however, be forced upon an unwilling public. It is, therefore, essential to get a more solid backing of public opinion and to this end the Division of Nutrition and Health Education is undertaking propaganda.

The education of dairy farmers in the details of dairy hygiene is also important but this is a function which is best carried out by the municipal health officials.

(8) SCHOOL FEEDING SCHEME.

The Department has long been exercised about the possibility of diseases being spread by means of the distribution of milk in the school feeding scheme, and, in fact, at least two extensive outbreaks of typhoid fever have been spread in this way. As the schools are government property they fall outside the control of the local authorities concerned. The Department has always considered that this is unsound as only the local authorities have the necessary machinery for the hygienic control of milk supplies. In fulfillment of its statutory function to advise and assist provincial administrations and local authorities in regard to matters affecting the public health, the Department pointed out to all the provincial administrations, and to the Union Education Department, about two years ago the advisability of their delegating their authority in this connection to the local authorities.

It was found that in Natal the principle of delegation of responsibility to the local authorities was accepted and that such authorities were responsible for the milk distributed at schools in their areas. In the Cape Province the provincial administration has not delegated the responsibility to local authorities as recommended by the Department, but has urged school feeding committees to ensure that sources of milk are regularly inspected and approved by the local authorities. The Department considers that this is not going nearly far enough and has urged that the responsibility should be delegated. The Union Education Department has accepted the principle of delegation of authority and has used a circular letter drawn up by this Department to that effect. The Transvaal and Orange Free State have not yet accepted the principle, but the Department is continuing to try to persuade them and the Cape Province of the need for this step.

All the bodies concerned have, at the request of the Department, sent out a circular letter impressing on all school committees which are responsible for the scheme the dangers of distributing unpasteurised milk and advising that only pasteurised milk should be used or, failing that, that all milk should be boiled. This letter, which was strongly worded, was drawn up by this Department.

This matter is of great importance and will be followed up by the Department until a satisfactory conclusion is reached in all the provinces.

Maternity Facilities.

"That this Council recommends (a) that there be established nation-wide maternity facilities which will ensure that every mother will be provided with ante-natal and post-natal care, the services of a midwife and where necessary those of a medical practitioner, a maternity hospital or a specialist as the case may be; (b) that those facilities be provided as an integral part of preventive health services; that the foregoing recommendation be referred to the Central Health Services and the Hospitals Co-ordinating Council for consideration as to their implementation."

(a) The Department agrees that this is the ideal at which we should aim.

(b) Under existing legislation the provision of maternity facilities in hospitals is a matter for the provincial administrations. When legislative provision was made for the function of pauper relief in general to be transferred from the purview of the provincial administrations and made a function of the central Government by Section 16 of the Financial Relations Consolidation and Amendment Act (No. 38 of 1945) hospitals and maternity homes were specifically excluded from this transfer. The implementation of this resolution could therefore only be brought about after a further amendment to the Financial Relations Act has been made. For this reason the matter was referred by the Central Health Services and Hospitals Co-ordinating Council to the Provincial Consultative Committee with a view to that body giving consideration to the suggestion that there should be a further amendment of the Act to enable the provincial administrations to transfer to the central Government their responsibility for maternity hospitals. The suggestion was that the law should be made permissive, as in fact is the whole of Section 16 of the Financial Relations Consolidation and Amendment Act.

The matter was considered by the Provincial Consultative Committee with the result which is reflected in the following resolution which was subsequently adopted by the Central Health Services and Hospitals Co-ordinating Council at a meeting held on Monday, 12th April, 1948:—

"That the National Health Council be advised that the matter was debated by the Provincial Consultative Committee at its twentieth meeting at which it was agreed that the Provinces would continue to work in collaboration with the Department of Health to make increased facilities available."

The Department of Health, however, strongly supports the view that there should be unification of control of maternity services and that these services should be integrated with the preventive health services under the control of the central government.

No action can be taken departmentally in connection with this matter.

Health Officials' Association: Resolution regarding Health Inspectors' Powers of Condemnation.

- "(a) That the resolution of the Health Officials' Association of Southern Africa, dealing with the granting of powers of condemnation being granted to Health Inspectors, be referred to the Standing Committee for reference to the Departments of Health and Agriculture for consideration; the Health Officials' Association of South Africa be afforded every opportunity of representing its point of view.
- (b) That the powers as contained in the Transvaal Local Government Ordinance *re* the seizure of foodstuffs suspected to be unsound or unfit for human consumption be extended to the other provinces so that the legislation in this regard shall be uniform throughout the Union, this measure to be effected, if possible for inclusion in the proposed National Health Act."

The resolution referred to reads as follows:—

"My Association presses for the power of condemnation to be given to all qualified Health Inspectors, for it is felt that it is very much more important to be able to judge food as fit for human consumption, than to decide when it is not. Health Inspectors at present, and especially Meat and Food Inspectors, have this very important power and responsibility of passing food as fit for human consumption, but they are debarred from condemning such foodstuffs. It is felt that this power should be conferred on qualified Health Inspectors, especially when the divorcement of the personal and environmental Health Services comes about. I can see no harm in there being an appeal, shall we say, to the Regional Medical Officer, in the case of dispute."

This matter has been referred by the Standing Committee to the Departments of Health and Agriculture for an expression of opinion. A conference of interested parties is to be convened by the Department of Health to discuss the matter, which is obviously complicated both from a technical and legislative point of view.

Compulsory Immunization against Diphtheria.

"This Council being of opinion that Diphtheria immunisation and possibly other forms of immunisation should now be more universally applied in South Africa recommends the election of a special sub-committee to enquire into the following:—

- (1) The feasibility of compulsory diphtheria immunisation in the near future.
- (2) The immediate introduction of more intensive propaganda in order to prepare the people for the reception of such a scheme.
- (3) The advisability of introducing more widespread immunisation against other diseases.
- (4) The necessity for compelling private medical practitioners to notify the Department of Health of all immunisations carried out by them."

The special committee met on 9th June, 1948 and passed the following resolutions which will be forwarded to the Standing Committee:—

"RESOLUTION I.—That this sub-committee after due consideration is opposed to the introduction of compulsory immunisation against diphtheria at present but that it recommends that the Health Education Committee of the National Health Council take immediate steps to ensure that every agency is employed to educate the public to realise the essentiality of immunisation against diphtheria.

It was debated whether the Committee should recommend broad details along the lines of which propaganda and education should take place but after full discussion it was decided to leave the matter in the hands of the Health Education Committee.

The Committee then proceeded to debate whether immunisation against other diseases should be recommended and whether medical practitioners should be compelled to notify the Health Department of all immunisations carried out by them. After the various difficulties and possible measures for overcoming such difficulties had been discussed the following resolutions were adopted:—

RESOLUTION II.—That the authorities concerned should constantly bear in mind the possibility of immunisation against other infectious diseases where immunisation is of known value.

RESOLUTION III.—That steps be taken for the introduction of legislation to compel medical practitioners to notify the Department of Health of all immunisations carried out by them."

The Department concurs in the views of the sub-committee.

Mothercraft Services.

"In view of the facts—

- (1) that the Infantile Mortality Rates in South Africa are appallingly high;
- (2) that, consequently, there is an urgent need for Midwives, and General Nurses to qualify in Mothercraft;
- (3) that training facilities for European women are highly inadequate (the only training Institute in existence being the S.A. Mothercraft Training Centre in Cape Town, subsidised by the Union Government through its Department of Health, also by the S.A. National Council for Child Welfare);
- (4) that many European women wishing to qualify in Mothercraft are prevented from so doing owing to the facts—
 - (a) that they cannot afford the fees;
 - (b) that they cannot afford to take leave without pay for the duration of the Course; and
 - (c) that the Training Centre is able to accept a very limited number of students; having facilities for the training of 41 per year only;
- (5) that no training facilities whatsoever exist for Non-European women;
- (6) that the S.A. Nursing Council intends to include Mothercraft as an integral part of its revised scheme for the training of Midwives, and this scheme will be impossible to implement unless training facilities are provided; and
- (7) that Mothercraft Training Schemes should provide not only for pupil Midwives, but also for—
 - (a) Midwives who qualified before their training scheme was revised; and
 - (b) General Nurses wishing to qualify for posts of Nurse Lecturers, Health Visitors, Matrons, School Nurses, etc.

This Council strongly urges the Government to recognise the urgent necessity of extending present Mothercraft Training facilities for Europeans and of initiating such facilities for Non-Europeans, and as soon as possible to state its policy in the matter, i.e. whether it intends—

- (a) to take the initiative in providing the necessary facilities; or
- (b) to make representations to the Provinces to do so; or
- (c) to subsidise Voluntary Organisations which may be prepared to take the initiative."

The Department fully recognises the need for extending the present mothercraft training facilities but at present there is no declaration of Government policy available on this matter and therefore no action can be taken.

Ophthalmological Services.

"That ophthalmological services be provided at, and form an integral part as far as practicable of every health centre in the Union with a view to prevention of blindness especially amongst Natives."

The recommendation is acceptable to the Department in principle. Such services are provided by general practitioners at health centres. The question of the provision of specialist ophthalmological services, where this is practicable, is under consideration by the Department.

State Medical Service.

"It is the view of this Council that provision should be made by the State for medical attention to all in need thereof and that as a means to this end a universal graded health tax should be levied by the State."

The Department is unable to comment on this resolution as it deals with a question of Government policy of the highest order.

Mental Health Services.

"That the question of the extension of mental health services into the fields of promotive, preventive and rehabilitative health services be referred to the Standing Committee with a view to making adequate provision in the National Health Act to ensure that these services will form an integral part of the future health services of the country."

The Department agrees that the services indicated should form an integral part of the health services of the country. This would involve amendments to the Mental Disorders Act (No. 38 of 1916) but the necessary amendments to both this and to the National Health Bill should be made. It is understood that the Standing Committee of the Council is in communication with the South African National Council for Mental Hygiene in connection with this matter and the exact form which such amending legislation should take is a matter for further consideration.

In the meantime practical recognition is given to the work of the South African National Council for Mental Hygiene by the payment to that body of a subsidy by this Department, while professional advice is given and specialist medical services are rendered to mental hygiene societies by physicians of the Mental Hygiene Division of this Department.

The importance of psychology in relation to the practice of social medicine is fully appreciated by the Department and the medical officers and health assistants undergoing training at the Training Scheme in Durban receive instruction in this subject under the guidance of a psychologist who is in the full time employment of the Department. In the practice of social medicine at the various health centres emphasis is laid on the psycho-somatic aspects of disease processes. The integration of the activities of the Division of Mental Hygiene with those of the Health Centres is also under consideration.

Psychiatric social work has not yet been developed to any great extent in South Africa. There is, however, at the present time the "Committee of Enquiry on the Training of Employment of Social Workers", which was appointed by the Minister of Social Welfare, and which is investigating all aspects of the training and employment of all types of social workers and auxiliary personnel. The Department is represented on this Committee. Among other matters the Committee is enquiring into the training and employment of psychiatric social workers and it has sought the advice of the Commissioner for Mental Hygiene of this Department. It is expected that the Committee will submit its report to the Minister of Social Welfare during 1949.

Pharmaceutical Services.

"This Council is of opinion that there is need for a fuller enquiry into the provision of adequate pharmaceutical services for the whole community and requests that the Standing Committee of this Council take the necessary action towards that end."

The Department provides for those persons for whom it is responsible through its district surgery system and through its health centres and institutions. It is considered that the provision which is made is adequate and a memorandum on the subject has been submitted to the Standing Committee which is investigating this matter. It is understood that the Standing Committee has asked the Pharmaceutical Society to submit a report so that it can give further consideration to the matter.

Mission Hospitals.

"That this Council recognises the great value of the work being done by mission hospitals in the sphere of Native health and strongly recommends the continuation of the existing hospitals under missionary control; it urges the Provincial Administration to give them adequate financial assistance."

The Department agrees with this resolution and, in fact, itself gives practical recognition to the views expressed by making use of the mission hospitals for the isolation and treatment of infectious cases and by paying for such cases at an agreed rate which is the full cost per patient-day. It is understood that the provincial administrations are giving to the mission hospitals an increasing measure of financial assistance.

National Health Bill.

"That this Council welcomes the proposal to consolidate and amend public health legislation and urges that such legislation be passed at the earliest opportunity."

That this Council approves generally of the new principles proposed for inclusion in the National Health Bill and set out in the special memorandum thereon presented to the Council at its first meeting."

The Department favours the passing of a National Health Bill on the principles set out in the memorandum which was presented to the Council at its first meeting. The matter is, however, one of policy of a high order and it must therefore await the consideration of the Government.

ANNEXURE B.

THE WORLD HEALTH ORGANISATION, NEW YORK CONFERENCE, 1946.

BY DR. H. S. GEAR, SOUTH AFRICAN DELEGATE.

(Union Health Department, Cape Town.)

Concern in the many differences unhappily prominent in present international negotiations has denied publicity to an outstanding example of successful co-operation by the nations of the world. At the International Health Conference held in New York in June and July of this year, no less than 61 nations were signatories to the conventions creating a World Health Organisation. This constitutes a record in international legislation. The importance of this Conference, its outstanding success, and its promise of immense progress in international health and medicine, justify a short account of it.

The Conference was convened by the Economic and Social Council of the United Nations following a joint declaration by Brazil and China at the San Francisco Conference of the urgent need for international action in the field of public health. Within a month of the Council's decision a Preparatory Committee was busy in Paris drafting a provisional constitution and, within six months, with three exceptions, all the nations had met in New York to elaborate a new world health organisation.

The meetings, occupying five weeks, were mainly held in the temporary headquarters of the United Nations Secretariat in Hunter College, the Bronx, New York. At the opening session, Dr. Thomas Parran, Surgeon-General of the United States Public Health Service, was elected President, in which role he soon demonstrated himself to be one of the most striking personalities in international health. Following the usual custom, the Conference divided into six committees, covering the following sections of the draft constitution:—

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|--------------------------|---------------------------------|
| (1) Scope and Functions. | (4) Relationships. |
| (2) Administrative. | (5) Regional Arrangements. |
| (3) Legal. | (6) General steering Committee. |

Each committee poured forth a flood of day-to-day documents, the reading of which alone amounted to a full-time task.

Though the Secretariat of the United Nations has only been in existence for a short period, it provided extremely efficient services for the Conference. Of these, the interpreter system, with its provision for English, French, Spanish and Russian, appealed to most as the most spectacular. The feat of two of the interpreters of translating half-hour, idiomatic speeches immediately; without notes, never failed to cause astonishment. Nevertheless, the necessity of handling the work of the Conference in two languages at least, and usually three when Spanish or Russian were used, made much of the proceedings both monotonous and arduous. This was accentuated by the human love of talk, a weakness from which certain groups suffered more than others. It was a trying experience to hear the same sentiment or series of facts repeated by a succession of delegates day after day and religiously translated into the working languages of English and French. Frequently, controversy, regrettable though it was, relieved the strain by injecting some excitement into the sessions. The subjects which were especially controversial were the eligibility of nations for membership of the World Health Organisation and the place of regional international authorities. In fact, the misunderstanding as to the position of the existing regional organisation of the Americas, i.e., the Pan-American Sanitary Bureau, came near to imperilling the creation of a potent world health authority. However, on the 22nd July the Conference reached the successful conclusion mentioned above, when sixty-one nations signed the following four documents:—

- (1) Final Act of the International Health Conference.
- (2) The Constitution of the World Health Organisation.
- (3) The Protocol with reference to the Office International d'Hygiène publique.
- (4) The arrangement concluded for the Organisation of an Interim Commission.

THE CONSTITUTION OF THE WORLD HEALTH ORGANISATION.

The preamble is rather wordy. Indeed, the whole document suffers to some extent in this respect. However, wordiness seems an inevitable defect of international agreements. Many delegations, frequently in inverse ratio to the importance of the countries they represent, insist on their sentiments being expressed and included in formal documents. Stripped of the wordiness and irrelevancies, the preamble acknowledges the principles on which the constitution is based, e.g. that health is essential to the happiness and security of the world; it is a right of every human being, irrespective of race, political belief, etc.; it is dependent upon the proper development of the child, the extension to all of the benefits of medical, psychological and related knowledge, and upon governments providing adequate health and social measures.

Having given the objective of the World Health Organisation as the attainment by all peoples of the highest possible level of health, the constitution proceeds to list the proposed functions of the W.H.O. These are extremely formidable and are vastly more comprehensive than the limited charters of such previous international health bodies as the League of Nations Health Section, the Office International d'Hygiène publique of Paris, or the Pan-American Sanitary Bureau. It is impossible to list these in the present notes, but among the chief functions proposed are the following. The organisation will—

- (a) act as the directing and co-ordinating authority on international health work;
- (b) assist governments upon request in strengthening health services;
- (c) establish administrative and technical services, including epidemiological and statistical services;
- (d) advance work for the eradication of disease;
- (e) promote the prevention of accidental injuries;
- (f) promote the improvement of nutrition, housing, sanitation, recreation, economic conditions and environmental hygiene;
- (g) arrange international health legislation;
- (h) promote maternal and child welfare and mental health;
- (i) further scientific co-operation and research;
- (j) promote education in medicine and health and provide information in these fields;
- (k) establish disease, health, and medical nomenclatures and standards for food, biological and pharmaceutical products.

The discussion on membership of the World Health Organisation was controversial. The proposals were, on the one hand, that membership should be open to all nations of the world, and on the other, that it should be limited to the members of the United Nations only. Eventually, the first and wider alternative was accepted which allows any nation now to secure membership. An unexpected development in connection with the discussion on membership followed a proposal by China to create a form of associate membership for "territories" or groups of territories which are not responsible for the conduct of their international relations". This received considerable support, especially from the smaller, non-colonial powers, and came to be adopted, including an amendment by Liberia that representatives of associate members to the Health Assembly should be chosen from the Native population. It needs no comment to confirm that this provision may come to be of considerable moment to the Union, especially in any future African "Region" of the W.H.O.

In Chapter IV of the Constitution, it is laid down that the "work of the Organisation shall be carried out by—

- (a) the World Health Assembly;
- (b) the Executive Board;
- (c) the Secretariat."

The World Health Assembly, a title suggested by South Africa, composed of delegates representing all member states, will meet in regular annual session in such country or region decided at the previous session. Thus the Assembly will, it is hoped, move round the world, and by its very presence be a stimulant of local interest in international health. The Assembly is to determine the policies, elect the Executive Board, appoint the Director-General, and generally carry out the functions of the Organisation.

The Executive Board is to be composed of eighteen. Membership is to be on a basis of an equitable, geographical distribution, and as it is limited to three years, it allows all nations an opportunity in turn to serve on the Board. Besides being the executive agent of the W.H.O., the Board will be empowered to take emergency measures to deal with events (e.g. epidemics, famine, etc.), requiring immediate action.

The Secretariat, in terms of United Nations usage, covers the actual staff—the Director-General, administrative, technical and clerical—to be employed by the W.H.O. in its various headquarters and field organisations.

The Headquarters are to be located, in terms of the Constitution, at a site to be determined by the Health Assembly after consultation with the United Nations. The New York Conference attempted to discuss the problem but could not reach agreement, hence the reference of the problem to the first health Assembly. Opinion of most delegates at the Conference was against including the Headquarters in the general United Nations Headquarters at present proposed for New York, and favoured a European headquarters—Paris, Geneva or London.

One of the most time-consuming and controversial issues before the Conference was that concerning regional arrangements. Members of the Pan-American Sanitary Bureau feared the new regional arrangements visualized by the W.H.O. might lessen the efficiency of its existing local organization. These members desired to continue the Bureau as an autonomous body to control international health work in the Americas and be the local representative of the W.H.O. However, agreement was eventually reached whereby the Bureau and any similar body will be incorporated in the W.H.O. The actual nature and extent of the future “regions” were not defined at the present Conference, but will be undertaken in due course by the Assembly.

The Constitution also makes the usual provisions for a budget, voting, amendments, and reports.

THE INTERIM COMMISSION.

As it will be some time, a minimum of nine months, before the necessary twenty-six states have ratified their signatures, the Conference established an Interim Commission of eighteen states to undertake, *inter alia*—

- (a) the convocation and provisional agenda of the first session of the World Health Assembly;
- (b) the programme and budget for the first year's work;
- (c) the preparation of memoranda on the location of the permanent headquarters, and the nature of the future regions;
- (d) the transfer of the functions of the Health Section of the League of Nations and U.N.R.R.A., and the preparation for a similar transfer of the Office International d'Hygiène publique;
- (e) the preparation of revisions of sanitary conventions, mortality and morbidity nomenclatures;
- (f) deal with any urgent international health problem.

The Interim Commission is already in operation with headquarters in New York. Dr. Stampar of Yugoslavia is its Chairman, and Dr. Chisholm of Canada its Executive Secretary and thus chief technical officer.

GENERAL REMARKS.

The new World Health Organisation has been launched auspiciously. Its future success will largely depend upon the maintenance of the enthusiasm of the signatories to its Conventions and in the growth of U.N.O. itself. It provides certain immediate benefits in international health as—

- (a) it prevents any “break” in the continuity of epidemiological and statistical records;
- (b) it prepares the way for a world-wide acceptance of international standards of such items as biological products;
- (c) it prepares the way for immediate revisions and improvements of international conventions concerning the spread of disease, the handling of drugs;
- (d) it continues the valuable work of the League of Nations, the International Health Office, Paris, and U.N.R.R.A.

However, its ultimate work is the most appealing, for, by its constitution, it will act as a stimulus to medical and health progress in every region of the world. It prepares the way for every benefit of medical science being granted to every citizen of the world. Thus it will be one of the great instruments for securing “the happiness, harmonious relations and security of all peoples of the world.”

